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THE USA: THE SCIENTIFIC AND TECHNICAL REVOLUTION AND TRENDS IN FOREIGN POLICY

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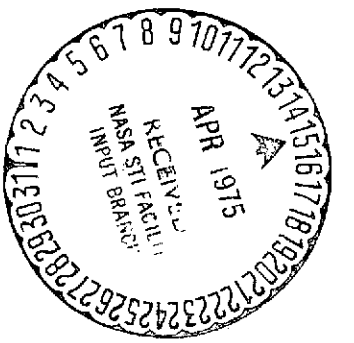

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16. Abstract

Reviewing now tendencies in USA policy, the authors show the influence of the scientific and technical revolution on the foreign policy strategy of the United States and reveal the interrelationship between the scientific and technical revolution and Washington policy in solving the most important international problems of modern times.

New areas in the foreign political activities of the U.S. are investigated (space, the oceans, atomic energy, etc.).

The basic areas of Soviet-American scientific and technical collaboration are briefly reviewed.

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The monograph "The U.S.A.: The Scientific and Technical Revolution and Trends in Foreign Policy" is the first attempt in Soviet scientific literature at a complex study of the effect of the scientific and technical revolution on the foreign policy of the United States of America.

Many basic aspects of the foreign policy course of the U.S.A. -- economic, military, ideological, diplomatic and others -- are analyzed in detail in the works of Soviet scientists. However, up to the present time, no works have been written which are dedicated to those sides and features of the foreign policy of the U.S.A., which were given rise by the constantly growing, complex and singular effect of the scientific and technical revolution.

In undertaking and attempt to bridge this gap, the author's collective paid major attention to those basic spheres of influence of the scientific and technical revolution on the foreign policy of the U.S.A., as the general shifts caused by it in American foreign political strategy, changes in military and foreign economic policy, and finally, new directions which appeared and rapidly developed during recent times under the influence of the scientific and technical revolution.

Naturally, all sides of this multifaceted theme cannot be investigated with sufficient fullness in a single monograph. Colleagues of the Institute of the U.S.A. of the U.S.S.R. Academy of Sciences, in preparing this book, see it as the first step in the study of new phenomena in the foreign policy of the U.S.A. in the conditions of the scientific and technical revolution.

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CHAPTER I

THE SCIENTIFIC AND TECHNICAL REVOLUTION AND FOREIGN POLICY OF THE U.S.A.

G. A. Arbatov et al

Our contemporaries, who are over seventy, can state with full foundation in fact that they are living witnesses to the appearance and distribution of the most significant inventions and innovation throughout the entire lengthy history of mankind. In actuality, they have seen the first, still very uncertain steps of aviation, they feared, as a miracle, the weak chirping of the first radio crystal receivers and the flickering on the screen on the shadows of a cinematograph, which after passage of several tens of years lead to the quarters of an invention which was new and has already successfully become very commonplace -- the television. Those who are of the same age as the century can rightfully assert that the largest part of the objects surrounding us in our everyday life, objects at which we have already long since ceased being surprised, appeared during the life span of only one generation. /4*

But even for the people of the twentieth century, who are accustomed to the miracles of science and engineering, the last twenty to thirty years have become especially surprising, since they were marked by a tremendous quantity of discoveries, inventions and innovations, which cannot but strike a person's imagination. Among these are the mastery of atomic energy, the production of artificial substances with previously set properties, the creation of theoretic basis and practical flowing into life of automation and computerization of industry, the appearance of miracle drugs, which saved many millions of human lives, delving into the secrets of heredity, and the courageous penetration of man into space. The scientific and technical revolution, of which they began to speak a few decades ago, proved not to be a one-time act, but a process, and a growing process. /5

* Numbers in the margin indicate pagination in the foreign text.

The scientific and technical revolution, and its economic, social and political consequences, have been attracting during recent times the greatest amount of attention of investigators. In the West, these themes have become a faddish craze. Servant-Schreiber, Herman Kahn, Weiner and Brzezinski have only tried their strength here, some with great and some with less success. Perhaps it is even more important that the factors of the scientific and technical revolution also included in their construction many traditional western schools of socio-political theory. Some bourgeois scientists attempted to find in the scientific and technical revolution and the long-awaited anchor of salvation for capitalism. Others strived primarily to turn it against Marxism and its main conclusion -- on the unavoidability of the replacement of capitalism with socialism. Others saw in this revolution still one more source of danger, a source of threat for the status quo which is so dear to their hearts...

The scientific and technical revolution caused not a little interest in the Marxist investigators. It must be said that the Marxist-Leninist theory proved also this type to be the only one which in reality is ready to explain the new fact of social life, and find for them the proper place in the complex picture of the modern era. Even Marx foresaw the onset of a time when science would be converted into direct productive force. We are the witnesses to this today.

The achievements which for long years accumulated in the various areas of mankind's knowledge and in socialized production apparently grew into fundamental, qualitative shifts, which rightfully received the title Scientific and Technical Revolution. The essence of this revolution consists directly of the broad incursion of science and scientific methods into socialized production and into other spheres of social life, and in the creation of a complex mechanism which provides a new, principally higher level of organization and mobilization of the major creative forces of mankind: its mental potential and conscious labor. Here is the true source of the constantly accelerating and expanding flow of innovations in all areas which the modern scientific and technical revolution carries.

This revolution has a great influence on all spheres of so- /6
cialized life, and changes many traditional concepts and impressions. They also include impressions of the force and power of a state. Much which was earlier considered to be major, determining, for instance the presence of natural resources, industrial potential which was large according to traditional impressions and so forth, has naturally retained its great significance. Together with this, such indices as scales of scientific-research and experimental design works, level of education of the population, quality of the training and number of specialists, and the

capability for rapidly and effectively introducing the achievements of science into production are ever increasingly moving out into the position of first and foremost. The speech, in other words, concerns indices determining the scientific and technical potential of a given society or a given state.

All this, however, is only one aspect of the problem. Another, no less important aspect of it consists of features of the socio-political situation in the world, in which the scientific and technical revolution is unfolding. This is a situation of class struggle, both in many removed countries, and in the world scale -- the speech concerns the historically unavoidable struggle between socialism and capitalism. It is clear that in these conditions the scientific and technical revolution also cannot unfold as an isolated process. No, this revolution, and its achievements prove to be armaments for the struggling classes. The socio-political medium affects the course of the revolution itself, and largely determines its consequences. In turn the scientific and technical revolution also affects the deep processes of socialized life. Finally, even a general evaluation of the scientific and technical revolution and its effects on the historical fate of mankind is impossible separate from analysis of the overall social and political situation, and the acute and complex struggle going on in the world.

V. I. Lenin, touching on those tremendous possibilities which opened before society, and in particular technical progress, in his time wrote: "Wherever you go, on each step you will meet problems which mankind is fully capable of solving immediately. Capitalism hinders this"[1]. Today the bases for this conclusion have appeared even greater. Modern science and engineering opened truly unlimited possibilities for solving the most acute problems standing before mankind -- overcoming poverty and hunger, victory /7 over diseases and prolonging human lives, transformation of mankind's labor and the well-being of our entire planet. But -- Capitalism hinders this. And it hinders not only in that it turns to its own self-interested gain the fruits of scientific and technical progress in those countries where the bourgeois order reigns. The problem becomes even broader, taking on truly worldwide scales, for an imperialistic foreign policy also forces other governments to expend tremendous resources and forces on the production of armaments, and creates a threat for mankind heretofore unseen in history -- the threat of a thermonuclear catastrophe.

It is impossible not to recall the words of Marx, who likened mankind's progress in an exploiting society to "an abominable pagan idol, who does not wish to drink nectar otherwise than from the skulls of the dead"[2]. This also fully relates to scientific and technical progress, which serves in conditions of capitalism not

only good, but also evil, and opens not only new possibilities but also engenders great new dangers.

The principle superiority of socialism in this area, if one speaks of the paths of progressive development of society, consists precisely of the fact that the forces of progress, and in particular scientific and technical progress are great, and it stands in the service of the workers, in the service of the entire society. In this plan the existence and successes of world socialism also introduce much which is new in the course of the processes of the scientific and technical revolution which are unfolding in the world. And not only in the sense of accelerating these processes -- the great successes of science and engineering in the Soviet Union and other countries of socialism are without argument. The fact of the matter also is that with all the contradictions of world tendencies in development in our era Capitalism has spent its previous freedom of operation and has ceased to show how it was before the victory of the Great October Socialist Revolution, and a monopolistic effect on the course of events. The specifics of modern times consist of the fact that our era bears a transfer character not only in the overall historical sense as an era of transfer from Capitalism to Socialism, but also in the political plan. This is an era in which capitalism still exists and lords over a significant portion of the planet, the active influence of socialism and society created by the working class and embodying its ideals /8 unwaveringly grows and becomes a more determining active influence on world matters. This opens possibilities for social progress, strengthening of the world and safety of peoples which are wider than ever before. In this, however, is the complexity of the many great social phenomena of modern times, including the scientific and technical revolution. It is unfolding in a world which is complex and permeated by class struggle, in a world where the course of events is influenced by tendencies of the past, the present and conceptions of the future.

Turning to more concrete aspects of the theme of this work: the effect of the scientific and technical revolution on the foreign policy of the U.S.A., of those new directions which this revolution engendered in the greatest and most powerful country in the modern capitalist world, a number of principle moments should first of all be noted.

In characterizing the effect of the scientific and technical revolution of modern imperialism and its politics, the international convention of communist and workers parties, convening in 1969 in Moscow, emphasized: "the scientific and technical revolution opens before mankind unprecedented possibilities for transformation of nature, creation of great material wealth and multiplication of the creative capabilities of man. At the same time as

these possibilities should be serving the good of all, capitalism uses the scientific and technical revolution for increasing profits and strengthening exploitation of the laborers.

The scientific and technical revolution accelerates the process of socialization of economics; in conditions of mastery of a monopoly this will lead to the arisal of social antagonism in ever greater scales and with still greater acuity. Not only do all the previous contradictions of capitalism become sharper, but also new ones are generated. This is primarily the contradiction between the extraordinary possibilities opened by the scientific and technical revolution and the obstacles which capitalism throws up in the path of their utilization in the interest of the whole society, turning a great part of the discoveries of science and tremendous material resources to military purposes and squandering national riches. This is the contradiction between the social character of modern production and the state-monopolistic character of its regulation. This is not only a /9
growth in the contradiction between labor and capital, but also a deepening in the antagonism in between the interests of the overwhelming majority of nations and the financial oligarchy"[3].

All this is especially clearly visible in the example of American imperialism. On one hand, mainly in the U.S.A., which is the most powerful country in the capitalistic world in an economic and scientific and technical respect, the consequences of the scientific and technical revolution are felt with special force, undermining the obsolete social system and aggravating the contradictions of this society. The speech goes on about massive unemployment, a constant satellite of the American economy, even in its periods of rise (it is not by chance that it received the name "technological") about the collapse of whole branches of the economy and the impoverished condition of large areas of the country, which is connected with the rapid changes in the structure of the economy, and on the growing problems of urbanization, transport, and pollution of the natural environment, with which scientific and technical progress turned around in conditions of capitalism. The speech also goes on about the increase in opposition democratic movements, since the masses begin to realize in more depth that the tremendous possibilities which the progress of science and engineering opens are not used for their good. (Incidentally, this growth in mass self-awareness is also determined to a significant degree by the fact that scientific and technical progress itself will unavoidably attract behind it an increase in the education and culture of broad strata of the population. When the speech, for instance, concerns the wave of dissatisfaction and agitation among the studen population, then in modern America this is not an insignificant minority, as it was twenty or thirty years ago, but almost half the

corresponding age groups of the population.]

On the other hand, precisely by the force of the economic and scientific-technical power of the U.S.A. their ruling circles have a special stake in using the achievements of the scientific and technical revolution in the class aims of their policies, not only domestic, but also foreign.

If we speak of the latter, then the ruling class of the U.S.A. placed and still places no small hopes on the scientific and technical revolution. And these hopes, it must be said, are not to a definite degree founded in vain, for advantages in scientific and technical potential can be realized and are being realized by the U.S.A. in the sphere of foreign policy along a whole series of important directions. One of them /10
is the improvement of military equipment, the realization in the military potential of the might of scientific and technical potential. Another is the utilization of scientific and technical powers for goals of foreign economic expansion and in connection with this a third direction -- the establishment of relationships with other countries such that they prove to be seriously dependent on the U.S.A. and are "bound" to their scientific and technical potential.

It would be desirable to pause on these three directions of the effect of the scientific and technical revolution on the foreign policy of the U.S.A.(1) in more detail, even somewhat anticipating the corresponding chapters of the book, for over the course of a significant period of time all these directions have remained important composite parts of the overall foreign policy strategy of the U.S.A. and as such exist in a definite interrelationship.

(1) In principle it is still possible to talk about one direction of this effect -- of attempts to rely on the scientific and technical achievements during the very process of preparation, development and formulation of foreign policy decisions (the creation of new systems for collection, handling and analysis of foreign political information, the use of models for forecasting and imitating foreign political situations, etc.). This direction, however, is incomparable in its meaning with the first three, moreover because due its class existence the politics of the U.S.A. create highly rigid frameworks for any attempts to place it on a "scientific" basis. It is characteristic that precisely in the 1960's especially active attempts of the ruling class of the U.S.A. to attract scientists and widely used scientific methods in domestic and foreign politics was necessary. But an especially deep crisis in these politics came during these very years, achieving its culmination in the pitfall of the war in Vietnam.

It would be untrue to state that the stake of the ruling class of the U.S.A. in utilization of the achievements of the scientific and technical revolution for purposes of expansion politics is absolutely groundless. The U.S.A., without a doubt, possesses extremely powerful positions in this area, primarily due to their great economic possibilities, so important for creating powerful scientific and technical potential. The fact that beginning from the middle 1930's, many of the most common European scientists imigrated to America in order to save themselves from facism, also has a great meaning. Also, during the postwar years the U.S.A. could still for a long period of time attract and disattract them with higher pay for their work and broader possibilities for developing scientific research than in ravaged Europe. However, although the struggle on the bridge-head created in international relations by the scienti- /11
fic and technical revolution are still not by far ended, and they willplay a great, and perhaps a very great role in the coming ten years, today there is full basis for asserting that the accounts of Americam imperialism are not settled in this area. They are not settled primarily because with all the meaning of the scientific and technical revolution it has proved to be not the only process and by far not the only social phenomenon effecting the course of world events.

The postwar period was also marked by the development of other processes, primarily processes of social revolution, leading to formation and strengthening of the world system of socialism, to the decline of colonial empires, and to a raising of the working movement and the strongest democratic of modern times. Our era was also marked by a further deepening in the overall crisis of capitalism and an increase in the inter-imperialistic contradicitions and internal difficulties of an economic and socio-political character.

Finally, imperialism has attempted and is attempting to use the achievements of the scientific and technical revolution for the struggle against socialism, for maintaining its lordship over peoples who have thrown off the weight of the colonial yoke, and for social maneuvering, called forth to weaken the pressure of the working movement. And in some directions these attempts at times bare their fruits. But they cannot change the main, the overall direction of orderly socio-political changes in the world, changes leading to a weakening of the position of imperialism (including American imperialism), and to further shifts in the relationship of forces of the two social systems in favor of socialism.

The accounts of the U.S.A. on effective utilization of the achievements of the scientific and technical revolution in foreign policy are also not settled for another reason. With all their significant capabilities the United States has not succeeded

in establishing and maintaining a monopoly on these achievements, including those in directions which are determining and especially important for foreign policy. This relates in particular to attempts of American imperialism to achieve, through utlizing the capabilities of modern science and engineering, a decisive superiority in the military sphere. /12
What occurred here is deserving, perhaps, of special attention. And not only because the modern scientific and technical revolution has begun in precisely this sphere and has brought in here especially impressive results (according to American calculations, the nuclear power of only one submarine, armed with strategic rockets, exceed by many times the total power of all explosives dropped on Germany and Japan during the years of the Second World War [4]). Another thing is important. Military force has always occupied a primary place in the foreign policy arsenal of imperialism in general and American imperialism -- at any rate during the postwar period-- in particular. But under these very conditions, when imperialism conceived, seemingly, the "absolute weapon", of which its most war-mongering representatives dreamed so long, the sphere of possible use of military force in the foreign policy of the U.S.A. began to seriously contract. This occurred primarily because the U.S.A. did not succeed in maintaining a monopoly over atomic weapons. A miscalculation was made in this plan by a Washington official which is typical for bourgeois politicians -- over evaluation of their own forces and under evaluation of the forces of the other side. The growth in the defensive might of the U.S.S.R. and the entire socialist collaboration crossed out plans which were built on the "decisive military superiority" of the U.S.A. and on the possibility for lawlessly using military force against countries of socialism or blackmailing them with this force. And although the American political leaders and theoreticians continued to build their calculation on the "military superiority" of the U.S.A., feverishly adjusting their military and political doctrines to the new power relationships, this, however, could not change the main fact: already from the end of the 1950's, it also became evermore apparent for the U.S.A. itself that a nuclear war unleashed by it would be equivalent to suicide. It became increasingly more difficult to use military force for the achievement of foreign political goals, that is for those purposes for which it was in the final analysis created.

But this was not by any means the only consequence of the military-technical revolution which was unexpected for imperialism. Another important consequence of it consisted of the fact that as a result of the appearance of weapons of mass destruction, a fearful threat arose, a threat to the existence of whole populations, and woke into life among the widest masses the tremendous forces of self-salvation, reinforcing in previously unseen /13

measure the anti-war movement in all countries, including the United States of America. And as the mass found political experience, the movements, dictating a striving toward preventing a worldwide thermonuclear catastrophe, took on a more widespread character, and grew into a movement directed against predatory wars and militarism in general.

The experience of American aggression in Vietnam demonstrated this with great force, when under the pressure of the general public even many bourgeois governments spoke out against this adventure of the U.S.A., while in America itself it became a catalyst of the opposition movements, which began to grow into an opposition of many old traditional bases of the imperialist course of foreign policy of the U.S.A., including a reliance on military force and the unchecked arms race emanating from it.

With large masses of people and all the values of more awakenings, material interests move first of all. And if the far-off colonial war of the U.S.A. in Vietnam -- in essence the same kind of war which the history of imperialism counts in scores, brought about general political consequences which were so serious for imperialism (including in America itself), then this was also caused by the fact that broad masses saw in the policy which engendered this war a threat to their vital interests, a threat which was especially frightening because the speech concerned a course of policy conducted into the nuclear age.

In conditions of deep social changes, caused by social and national liberation revolutions, in conditions of rising political congnizance of widespread masses the struggle against thermonuclear war and the policies giving rise to it becomes, therefore, a serious political force. Moreover, it acquires no little revolutionary potential, since the threat of such a war arouses the interest of the masses to no less a degree than poverty, social injustice and a national yoke, serving up to the present time as the major arousing motifs of revolutionary addresses. This, naturally, places serious problems before the bourgeois politicians and forces many of them to seriously ponder the perspectives of a political course which is not only doomed to failure due to the changing relationship of power in /14
the world arena, but is also fraught with serious internal shocks.

One more consequence of the military and technical revolution is added to those noted above -- the tremendous economic costs of the race in modern arms, for, on one hand, obsolence of armaments is accelerated in our time; the unchecked scientific and technical progress in the absence of agreements limiting the arms race dictates its own logic, forcing types of weaponry

which are modern by yesterday's standards to be replaced with more improved ones again and again, and on the other hand, the cost of armaments increases in a truly geometric progression with each new generation of them (concrete calculations are presented in Chapter II). In summary the military economics of a comparatively small sector of the economy, seem by the ruling class of the U.S.A, even as a useful "balancer", allowing the government to regulate the economic conjuncture, cushioning the action of cyclic crisis, was transformed into a tremendous and productive part of the economy, disrupting the normal functioning of the economic mechanism.

Suffice it to say that from the years 1922 through 1937 the U.S.A. spent on military needs less than one billion dollars per year, which amounted to 10-15% of the federal budget, while after the Second World War this figure increased up to 50-80 billion dollars, reaching 40% of the budget and higher. And in all, over the postwar years, the military expenses of the U.S.A. exceeded the incredible figure of 1200 billion dollars.

As a result of this, on one hand, forces and means began to be attracted from the growing internal problems, even under conditions when that same scientific and technical revolution lead to their becoming more acute and itself generated no small number of new problems, such as pollution of nature, growing urbanization and others. The example of the U.S.A. in this respect is extremely indicative. The aggravation of these problems has brought about the requirements to re-examine political priorities, or, speaking simply, re-examining policies so that a significant part of the forces and means going to security expansionist form of the U.S.A. and the arms race is being switched over to solution of internal problems.

On the other hand, it became apparent that the tremendous military expenses will lead to economic consequences such as inflation, undermining of the competitive position of the U.S.A. in the world market, and weakening of the dollar. On this basis /15
the contradiction among the ruling class itself were aggravated: the interest of the military-industrial monopoly came into definite collision with the interests of other, more numerous and also highly influential groupings of monopolistic capital. Later we will also touch on how painfully all this was reflected in the conditions of aggravation of the inter-imperialistic contradictions in another important direction in the policy of the U.S.A.-- the economic one.

As a result, at the end of the 1960's and especially at the beginning of the 1970's the unusual situation was formed in which

the failure of the previous foreign policy course of the U.S.A. also began to become apparent to many representatives of the ruling class of that country. The well-known American foreign policy researcher Richard Barnet even arrived at the following conclusion on this basis: "In the middle of the 1960's a serious conflict arose between the economic interest of the government and the interests of the corporations. Briefly speaking, the cost of maintaining the imperial system has begun to exceed the profits extracted from it ... beginning exclusively with economic criteria, corporate managers arrived at the conviction that the achievement of national interests through the use of military force threatened the property and profits of the corporations"[5]. Naturally, Barnet can be reproached for contrasting the ruling clans with the state which serves its interests, while the issue more closely is that of the conflict inside the ruling class, but the essence of this conflict is delineated sufficiently clearly.

Summing up the balance, it is possible to say that the attempt by the ruling class of the U.S.A. to use the achievements of the scientific and technical revolution to obtain a "decisive military superiority", which could be released into action to achieve its final foreign policy goals, had results differed fundamentally from those which were planned. For the reasons stated above, the course of events took a paradoxical turnabout to a known degree. The scientific and technical revolution took modern military might up to its thinkable limit (though naturally, in a narrower sense there is no technical limit to the arms race). But simulatenously it became apparent that the sphere of utilization of this tremendous military force had begun to shrink sharply. Having reached its apparent culimination point of de- /16
velopment, militarism discovered its increasing political impotence. That "dialectic of militarism", about which F. Engels wrote in the last century, began to approach its logical conclusion: "militarism reigns over Europe and devours it. But this militarism conceals within itself the seeds of its own destruction"[6]. These "seeds of destruction" Engels saw on one hand in the fantastic increase in military expenditures, and on the other in the conversion of bourgeois governments to a mass army, which represents an armed population and therefore sooner or later it will refuse to pay for the politics of the oppressors with the heavy sacrifices and deprivation (2).

(2)

As F. Engels foresaw, a mass army proved to be the Achilles Heel of the bourgeois military machine. It is not by chance in light of the experience of the Vietnam war that the U.S.A. underwent a major reform in its military structure, in essence signalling a return to a professional, mercenary army.

The course of historical development has added many other factors to these, which naturally could not be seen a hundred years ago, including the modern scientific and technical revolution. However, the forecast that the time must eventually come when the "machine refuses to serve and militarism perishes due to the dialectics of its own development"7, has still not, naturally, come true by far, but it finds new assertions in our era. It finds assertions in that even the military force which is fantastic in its capabilities proves powerless to turn back the course of historical development. And these facts are now beginning to be evermore widely recognized by the bourgeois theoreticians who are the furthest removed from Marxism. "The process of a boundless increase in military force, which began in the nuclear age", writes, for instance Hans Morgenthau,"went hand in hand with the process of the devaluation of its practical use"8. Frankly speaking, Henry Kissinger also recognizes this truth, emphasizing that it is evermore difficult in our time to convert military power into political influence.

From here the opinion has become increasingly widespread among representatives of the bourgeois opposition in the U.S.A. that the increase in military power of America, however impressive it might seem, is accompanied by the "erosion of power and influence" of the U.S.A. in the world 9,in that the arms race does not assure, but, conversely, undermine the true national security of America 10. /17

It is significant that the lack of perspective of the arms race and the attempt to achieve "strategic superiority" has also become evident for many Americans who not long ago took an active part in the military structure of the U.S.A., such as G. York, D. Wisener, D. Kistoyokovskiy, D. Ratgens, G. Scoville, R. Harbin and many others. All of them are major experts in the area of armaments, and their point of view who cannot be considered by American society to be an authoritative or sufficiently competent.

Naturally, clarification of the unsuitability of nuclear might and of the diminishing possibilities for using military force on the whole in the modern era is a contradictory and complex process. And this is not only because theory here does not keep step with the facts, with realities, but practical politics frequently does not keep step even with theory. Other factors prove to be of much greater importance: the immediate interest in continuing the arms race by the influential military-industrial complex, and, what would seem to be more essential, the nature of bourgeois politics itself, which makes the turn away from the traditional stake in military force and attempts to achieve "military superiority" so difficult for the ruling circles of the U.S.A.

Here are also many evident contradictions in the policies of the U.S.A., in which the official recognition of the principle of equal security and a move away from attempts to achieve military superiority (and it is contained in the document "Basis of interrelationships between the U.S.S.R. and the U.S.A." signed in Moscow in 1972, and in a number of other agreements) is combined with continuing attempts to force the arms race in spheres which have not yet fallen under limitation according to the Soviet-American agreements. Many representatives of the ruling circles of the U.S.A. have still not moved away from hopes that future achievements of amilitary-technical character could still in someway turn back the course of events, assuring the U.S.A. the possibility for effectively utilizing military power as the chief instrument of its foreign policy.

All characteristic is the attention which some people, residing now in power in the U.S.A. give to the problem of confidence of the other side in the "authenticity" of the "military posture" /18 occupied by them, which is to say in the absence of a divergence between the declared intentions to use military force under certain conditions and actual readiness to accomplish it (in the U.S.A. this is called the problem of "credibility"). This, by the way, is the way a number of American researchers explain the repeated acts of escalation of the aggression in Vietnam, perpetrated by Washington in the face of the apparent truth that these actions could not break the will of the Vietnamese patriots to struggle and force to them to capitulate. The lack of perspective of this approach became even more clear as a result of the victory of the right-wing side of the Vietnamese population.

At the same time, the noted sides of American policy showed numerous times how important it is for other countries, especially socialist countries, to maintain high vigilance in the future. This does not, however, change the basic fact: the incursion of the scientific and technical revolution into the military sphere did not nearly justify the hopes which were placed on it by imperialist circles. And precisely because the class nature of the politics of the U.S.A. was maintained by the former, in it now, it is evidently intended to shift reliance to other, nonmilitary "factors of force" and weapons of foreign policy.

In explaining the state behind this tendency, V. Basiuk, a scientific colleague of the Institute on Problems of War and Peace of Columbia University, who later went to work in the U.S.A. Department of Defense, noted that now evidently a blind alley has been set up on the "nuclear level" and a "partial blind alley" on a "lower level" in the area of possibilities of changing the world balance of power by means by building up conventional weapons. In this connection, writes Basiuk, "the evolution of nonmilitary

science and technology prompts at least one important conclusion. Since precisely in this area a redistribution of the balance of power can occur now and since here a blind alley is not threatening, civilian scientific and technical development now takes on a more important than it has ever had before"[11].

Strictly speaking, aforestated reflects one of the important, common features of the current international situation -- the fact that the changed forced relationship in the world places serious obstacles in the path of imperialistic attempts to achieve their goals in the world arena by means of arms, and promotes shifting of the major jumping-off points of the struggle into other spheres -- the economic, political and ideological ones. In these nonmilitary spheres, the struggles of the scientific and technical revolution play an important role. Moreover, science and technology themselves are now being transformed into an important jumping-off point in the competition between the two systems. /19

All of this makes such an object of study as the effect of the scientific and technical revolution on the foreign policy of the U.S.A. in nonmilitary spheres extremely complex, since not only in American political theories, but also in practical politics here the various lines and directions are whimsically thrown together, not to speak of the different approaches -- like those dictated by the past, bearing impressions of the "cold war" and those emanating from a realistic understanding of the modern situation, built on cognizance of the necessity for maintaining peace and expanding international cooperation with equal rights.

Before, however, stopping in more detail on the question of what sort of correctives international relationships must introduce, actually founded on principles of peaceful coexistence, also in the struggle between the two systems on the nonmilitary staging areas, it is desirable to touch a number of other problems. One of these is the meaning which scientific and technical progress acquires in the foreign economic policy of the U.S.A. which has become an ever increasingly important direction in all their foreign policies.

The postwar years, for all that military force was laid at the basis of the global foreign political course of the U.S.A. and the major goal of this course was proclaimed to be a struggle against world socialism, where a period of economic expansion by the U.S.A. unprecedented in its activity. However, having achieved here over the course of the first 15-20 postwar years a serious strengthening of its positions, America during the postwar years began to run up against growing difficulties.

This was connected primarily with the intensifying economic contradictions inside the capitalistic system and unevenness of development of the countries going into it, strengthening of the competitive position on world markets (and incidentally, also on the internal American market) of Western Europe and Japan, and , last but not least, with the fact that the position of the U.S.A. proves to be seriously weakened due to disproportionate spending on arms and foreign political adventures.

The position made up is causing serious alarm in the ruling circles of the U.S.A., especially in connection with the fact that according to forecasts distributed in the United States the 1970's would be first of all the "economic decade", over the course of which sharp intensification of the competitive struggle should be expected. This conclusion is contained, in particular, in a report on foreign trade perspectives, prepared by P. Peterson[12] , who at the special time was a special assistant to the president on foreign economic policy, and later was Secretary of Commerce of the U.S.A. Measures are proposed here in connection with this ? /20

Partially they go along the line of direct political and economic pressure on the American allies. However, in the U.S.A. they well understand that to go in this direction further than determined limits would mean causing further serious aggravation in relations with Western Europe and Japan, and this can place the entire system of American political and military allies under threat, not to speak of the fact that the American competitors are also capable in case of further stepping-up of the "trade war" of using effective countermeasures, which would strike painfully at American economic interests.

Another system of proposed measures consists of depriving the economic competitors of the U.S.A. (which are at the same time their political allies) of those advantages which they have, bearing a smaller a portion of the military expenditures than America. The fact that the tremendous military expenditures of the U.S.A. undermine its competitive position in the world market, it must be said, does not even raise doubt in America, including among the majority of the representatives of the business circles. No other than Lewis Landberg, than chairman of the board of the "Bank of America", the largest bank not only in the U.S.A., but in the entire world, appearing sometime back in one the commissions of congress, with bitter irony declared: "I would say to all potential aggressors of the world: 'If you want to get profits, if you want the world to be yours, don't waste energy in useless military enterprises, follow the example of Japan and Germany after the Second World War and be aggressive

economically"[13]. The matter is there, however, and even not in separate speeches. Recognition of the fact that tremendous military expenses inflict great economic losses on the U.S.A., /21
undermining the stability of the dollar and causing a rise in the prices on American goods, also finds a well-known reflection in official policy, and meanwhile, true, it is primarily in this direction that the U.S.A. is achieving a redistribution of the time of military expenses so that the American allies take upon themselves a greater share of them. Together with this the very fact that understanding of the direct connection between the tremendous military expenditures and the growing difficulty in their competitive struggle on the world market is increasing in the U.S.A., justify to the appearance among the ruling class of America of definite moods which could bring pressure to bear on official Washington, pushing it toward some further steps in limitation of the arms race.

And finally, the proposed system of measures foresees forcing scientific and technical progress in the United States themselves.

In analysis of the basic peculiarities and direction in the foreign political expansion of the U.S.A., we are first of all hit in the face with the fact that during the postwar years the major geographical region to which American capital rushed became Western Europe and Canada, while the developing countries, including Latin America, were shifted to third place (previously this order was reversed -- Latin America, Canada, and then Western Europe). The volumes of foreign investments increased many times, from 12.5 billion dollars in 1939 to 151.7 billion dollars in 1970.

Such a rapid growth in American capital investments abroad, and also the change in their "geography" is explained by a number of reasons, including the relative weakening of Western Europe capitalism as a result of the Second World War. But, perhaps, chief among them are the new capabilities and requirements engendered by the scientific and technical revolution. In a significant measure this, along with, of course, national liberation revolutions, making investments in the countries of Latin America, Asia and Africa "unreliable" for American capital, explains the relative decline in the role of the developing countries and object of capital investments of the U.S.A., for the relative value of many types of raw material has begun to decline due to successes in branches which produce synthetic material. At the same time the value of such elements of production as a well-qualified (and at the same time relatively inexpensive) /22
working force, the presence of specialists and so forth has sharply increased. And in this respect Western Europe is especially valuable for the American monopolies.

Some other new possibilities in a "geographical maneuver" of American capital are connected with rapid scientific and technical progress. Successes in transportation and communications, for instance, seriously reduce the meaning of such factors as newness of industry to sources of raw material and power.

And what is important is that the increase in the value of qualitative factors in the growth of economics (among them scientific and technical progress and improvement of systems for organization of labor and control are especially important) gave the American monopolies new means of introduction into the economics of other developed capitalistic countries, for the promise of obtaining higher profits, which American technology and control systems promised to Western European capitalists -- this is the sort of bait which frequently proves to be stronger than economic nationalism and even fear of the loss of independence. This is first of all connected with the emergence into the forefront of the new form of economic expansion -- the rapid growth of worldwide, or, as they are frequently called, international or supernational corporations.

Recent years, noted for the U.S.A. by increasing foreign economic difficulties, effected with a special force the dependency of the economic expansion on the rates and depth of the scientific and technical revolution. The unevenness of the development of capitalism in combination with the above aforementioned consequences for the U.S.A. of its tremendous military spending lead to a relatively more rapid growth in the economics of Western Europe and Japan, and to a significant degree liquidated those advantages which the U.S.A. had in the first postwar years. As a result of these shifts it became apparent that the U.S.A., as a rule, cannot successfully compete with these countries in traditional goods and traditional forms of economic intercourse. And only where the question is of "science-consuming" goods, connected with the newest technology, and also such new forms of economic expansion as direct foreign capital investments primarily in branches of industry which are key ones from the point of view of scientific and technical progress (3), and also export of /23 new technology (in particular, licensing), American monopolies have maintained strong positions, and in a number of cases have strengthened them, regardless of increasing competition.

(3) It is indicative that in recent years over 70% of American capital investments in Western European industry were directed into electronics, chemistry and machine building.

Naturally, this competition also encompassed the sphere of scientific and technical progress. Here the major competitors of the U.S.A. also achieved no small number of successes. But in this sphere American capital, due to the superiority of the scientific and technical potential of the U.S.A., continues to maintain essential advantages.

During recent years these facts have received continually widening recognition in the U.S.A. And this is not only in the works of various researchers. In essence, they lay at the basis of one of the important directions in state politics, which is sometimes called "the new technological politics", since it is aimed at forcing scientific and technical progress in its own country, and creating and strengthening its superiority in this new staging area for a struggle which has not taken on worldwide proportions (4).

In 1971, the then U. S. Secretary of State W. Rogers appeared with the special address "American foreign policy in the technological age", in which he emphasized that the government "is bringing American foreign policy into agreement with a position, attesting to the fact that never before have the achievement of science and engineering been turned around on a global scale by such a multitude of consequences for so many people" [14]. And in 1972, official acts followed, including a special message of President Nixon on questions of scientific research and development, proclaiming the major goals of this policy.

The question concerns, in particular, maintenance of large allocations for research and development (and this is in a period /24
of the economy when allocations for the majority of other programs have been slashed). The question also concerns an increase in that part of these allocations which goes for nonmilitary research, on measures encouraging efforts of the monopolies directed toward acceleration of scientific and technical progress, on politics in the area of scientific and technical exchange between the U.S.A. and other governments, and so forth.

(4) It is possible, naturally, to argue about the novelty "new technological politics". Now corresponding statements by President Truman, relating still to 1949, are frequently being cited. American theoreticians and political activists also wrote quite a bit about the foreign political possibilities opened by scientific and technical superiority in the 1950's and 1960's. With this, however, it is impossible not to see that in the 1970's, shifts have occurred converting corresponding forces into a strategic policy direction. This is connected both with the apparent increase in the role of "nonmilitary" means of struggling, and with aggravation of foreign economic difficulties.

Naturally, in part, the activation of all these efforts, timed for 1972, can be explained by considerations of the pre-election struggle, and the striving of the Republican administration to demonstrate to the voters that it will seek and find effective means for overcoming the internal and foreign economic difficulties which the U.S.A. encountered, even more so since after the election -- in 1973 -- the tone of official addresses on this problem was noticeably reduced, as was government activity in the scientific and technical sphere. But the matter does not by far simply come down to pre-election considerations. The "new technological politics", although its concrete directions are still located in the stage of formulation, was doubtless dictated by real strivings and goals, set up before the American political ruling class. And the most important of these is the striving to strengthen the competitive position of America. It is characteristic that calling upon the "new forces" in area of science and engineering, President Nixon directly emphasizing that other countries are rapidly moving along the steps of the scientific and technical ladder, throwing the U.S.A. "the gauntlet" in intellectual and economic plans". And the well-informed magazine "Business Week", rightfully considered as an opinion spokesman for influential business circles in the U.S.A. in explaining this mood and at the same time refuting the discussion about "disinterested" international scientific and technical cooperation, with which many American official statements had been richly larded, wrote: "Same time as the basic direction of the new strategy in area of technology consists of accelerating the technical progress in the U.S.A., the political support, derived from this strategy, directed at retarding the speed of access by foreign governments to American technology, rises simultaneously"[15].

Although the "defensive" emphasis of the "new technological politics" is apparent, however, and is explained by the real difficulties which the U.S.A. is presently suffering, in future the question, judging by all, may be one of a strategy which is broader, and is in pursuit of far-off goals. /25

And here we move over to the third direction along which the efforts of the capitalistic powers can go, which are connected with attempts to use the scientific and technical revolution in the interests of their foreign policy. This, as has already been mentioned, is the course of "binding" other countries to their scientific and technical potential, and establishing with them in new form the same relationships of domination and subjugation which are traditional for capitalism. It is impossible not to see that due to its very character the modern scientific and technical revolution opens no small number of possibilities in this plan.

If it were connected with the appearance of only one or a few major discoveries and innovations, it is doubtful that the country possessing the scientific and technical advantage could consider that it might successfully use it in order to place others in a position of strong and long-lasting dependency. Other countries would just the same sooner or later master these discoveries, the position would even out and the advantage of he who had first leaped forward would prove to be a passing one. Strictly speaking, this is what is constantly happening, when the question is about separate scientific discoveries and inventions -- radio location, jet engines for aviation, atomic energy and rockets. The one who proves to be first can extract from this definite economic, military or political gains, essential for a time, but always in historical perspective, short-lived.

However, the entire fact of the matter is that the modern scientific and technical revolution, as we have already emphasized, does not boil down to separate discoveries and innovations or even to their sum. As soon as the question concerns transformation of science into direct productive force and creation in this connection of a powerful scientific and technical potential, of that complex, large and expensive mechanism which allows the creative forces of a society to be mobilized, in order to assure an uninterrupted flow of these discoveries and inventions, then the position changes in a fundamental manner, for the overwhelming majority of countries could not catch up with the U.S.A. through their own efforts. They could not do this because of the tremendous cost of maintaining such a potential (the U.S.A.'s direct /26
expenses alone on scientific research and development presently exceed 30 billion dollars per annum), and due to the necessity for creating for its effective operation a singular type of "infrastructure", which is to say a high level of many branches of industry, without which the rapid mastery and introduction into production of the achievements of science is impossible, a large reserve of highly qualified specialists, a corresponding information system, etc.

Governments which cannot create a sufficiently powerful scientific and technical potential from their own resources turn out to be faced with a complex dilemma under these conditions. They are in fact faced with a decision: to either lag seriously with respect to scientific and technical level, which for countries which are bound to the world capitalistic economic order would signify undermining of competitive positions and in the final analysis economic slavery by a more advanced country, or to firmly bind oneself to a country possessing this potential, in conditions of the capitalist economic system again at the cost of losing some part of its economic, yes, and even its political independence.

The position which was made up in the 1950's and 1960's showed how real this perspective is. Not only the U.S.A.'s neighbor Canada, but also the major capitalist countries of Western Europe found themselves in serious scientific and technical dependency on the U.S.A., a dependency for which they were forced to pay, opening their doors wide for American capital, and the American monopolies, under whose control came 80% of the production of electronic computer machines in these countries, over 50% of the production of semiconductors, 95% of the production of integral schematics, a signiciant part of machine building and instrument building, and the automobile and chemical industry.

With this the interest of the Western European countries in the achievements of American science and engineering and in management experience was so great that they, conceding to the American monopolies, tax and other advantages, frequently directly financed the expansion of overseas companies. According to some calculations, the European money obtained in this manner amounted to over 70% of all "American" capital investments (for more detail on this, see Chapter III).

The situation which had come together in the middle of the 1960's began, however, to cause serious alarm in Western Europe. /27 This is exactly the explanation for the tremendous impression which Servant-Schreiber's book "The American Challenge" which had come out at the time made in many countries. It is possible that it had an intentionally alarmist character, but the basic process of the deepening scientific and technical, and meaning also the economic and political dependency of the Western European countries on the U.S.A. was characterized in it relatively accurately.

True, it was in this precise period that the position began to change partially due to the fact that the U.S.A. entered a time of difficulties which were connected with the warped one-sided military orientation of their economics, as well as their scientific and technical potential. Countermeasures taken by the Western European countries for strengthening their own scientific and technical potential and reinforcing integration tendencies, which had also acquired to a definite degree an anti-American thrust, and development of economics, scientific and technical communications with the U.S.S.R. and other socialist countries. During recent years this has lead to the fact that alarms have begun to be sounded already in the U.S.A. dictated by the fear of losing scientific and technical leadership in the capitalist world. The same "Business Week" wrote: "In the middle of the 1960's European industrialists spent a lot of time bemoaning the "technological gap" between the U.S.A. and Europe. Today warnings on the part of American businessmen and economists about the

appearance of growing danger of appearance gap, if the proper steps are not taken, are becoming almost as common" [16].

And these moods, it must be said, were reinforced by some relatively impassive facts. For the U.S.A. it was a real shock, for instance, that the balance of trade of the country at the beginning of 1970's turned unfavorable for the first time in a hundred years. In one of his interviews, President Nixon said with alarm that "during the period between 1960 and 1971 the export of Japan rose by 493%, that of Western Germany rose by 242% times, while the export of the U.S.A. increased by a total of 115%" [17]. With this the rapid increase in export of competitors of the U.S.A. took place largely due to the very "science-consuming" products.

Naturally, for the time being the question can concern the extremely relative weakening of American position. On the whole they remain strong. This, however, also served as one of the important stimuli for the all-out effort of the U.S.A. towards /28
strengthening for itself the leading position in the capitalist world, which the "new technological policy" expresses.

These efforts are going along two directions. One of these is forcing the increase of its own scientific and technical potential, as we have already noted. The other direction is creation of a system of scientific and technical communications and collaboration with other countries which corresponds to the "interests of the U.S.A. These efforts are of course dressed in corresponding phraseology, selected to depict them as corresponding to the "interests of all participants" and is being aimed at "general progress" and "prosperity".

In the purely official announcements of American officials, those not having a propoganda direction, however, no secret is made of the fact that the U.S.A. has in mind above all its own interests. We will present in this context a speech made in Congress by the director of the Department of International Science and Technical Communications of the U.S. Department of State, Herman Pollack: "The overall goal of the government of the U.S.A. and accomplishment of international collaboration in the sphere of science and engineering consists primarily of enhancing provision of our international interests and strengthening our international ties" [18]. And the question concerns not only, as is evident from the statement of "Business Week" magazine presented above how the purpose in the conditions of the development of collaboration can also become making access by other governments to American technology difficult. Much more important is another question, accounting to the fact that the U.S.A. extracts from this collaboration the most advantages, since they have available

a high level of scientific, engineering and industrial potential, which gives them the possibility to master new discoveries and inventions more rapidly than other countries of capitalism.

In summation, it can be said that in the sphere of the scientific and technical relationships of the U.S.A. with other developed capitalist countries a complex struggle lies ahead. The United States will doubtless try to maintain and strengthen for itself the position of superiority, seeing it as one of the important prerequisites for strengthening their economic position and providing the possibilities for economic expansion. At the same time the capitalist competitors of the U.S.A. are now prepared to a greater degree than ever before not only to show /29
counteraction to this, but also to continue to crowd the U.S.A. in economic, scientific and technical spheres.

While the "new technological policy" of the U.S.A. is largely connected primarily with their relationships with developed capitalist countries, from here it cannot follow it simply boils down to these relationships. Relationships with countries of the so-called "third world" are also an extremely important direction of it, although they have also ceased being a major sphere of export for American capital.

The stimulating effect which the scientific and technical revolution gives to the development of world-wide economic ties has, true, for the time being touched the developing countries to a lesser degree. And this is explained by no means only by the absence of the necessary technical and economic infrastructure in the majority of the developing countries, but also by the fact that the low solvent demand makes, from the point of view of the capitalist ownership, development of new branches of industry in these countries only slightly profitable. The cognizant policy of supporting the development of countries which have been freed from colonialism, and primarily scientific and technical development, continues to play a large role. It is characteristic that the maximum increase in American investments in the developing countries occurred in those very ones which produce oil for export to developed countries.

Here also, however, shifts have been noticed which testify to the fact that the developing country remain an important object of American and global strategy, but also to the fact that the U.S.A. is beginning to see utilization of the achievements of scientific and technical progress as both a cheaper and a more effective means for maintaining or reestablishing the dependencies of these countries on America and the struggle for influence in the "third world".

A number of major projects, developed or being developed in the U.S.A., which, according to the intention of their authors would provide at a cost of relatively low outlays, effective dependency of the corresponding countries on the U.S.A., on their science and engineering, attract attention to themselves.

In this context, one should recall the so-called "green revolution" -- the removal and introduction of new high-yield crops in tropical countries (for more detail on this see Chapter IV), and also projects seeking new sources for production of protein-- the most deficient part of the dietary ration in the "third world" countries -- on the basis of using sea resources (even in 1967 the Directorate of International Development together with the Bureau of Commercial Fishing undertook accomplishment of a program which was sometimes pretentiously called "products of the sea in the war against hunger" or "food products through freedom"). /30

The project for agricultural-industrial complexes, working on atomic energy, developed for the 1970's by the National Laboratory in Oak Ridge also received relatively widespread notoriety, with insufficient fresh water (for instance, for the Near East or the Carribean Sea basin), must contain production of energy (atomic) with freshening of water for purposes of irrigation and intensive production of chemicals, fertilizers and metal, requiring a large quantity of cheap electric power. Sea water and air must serve during this as the chief initial raw material for the production of such products as hydrochloric and nitric acids and ammonia. It is projected that other raw material -- bauxite and phosphorous -- will be imported. Each such complex will be called on to play a noticeable role, both in solution of the food problem, and in industrial development of the region.

A characteristic feature of all these projects consists of the fact that the question concerns creation of major technical systems and complexes whose normal functioning over the course of many years will depend on collaboration of the corresponding countries with the U.S.A. (the question will touch on the other political purposes of these programs further below). Considering the economic, scientific and technical potential of the U.S.A. it would apparently be incorrect to underestimate those possibilities which could reveal similar methods in the struggle of American imperialism for influence in certain developing countries. Together with this it is also impossible to overlook the fact that this struggle goes on in new conditions, determined by an overall change in force relationships in the world and that the upsurge in liberating movements, which also seriously narrows the possibilities for expansion of American monopolies in this

important direction, even more so since the U.S.A. has lost its monopoly in scientific and technical aid to developing countries, which are increasingly collaborating with the socialist world. /31

Turning to the question of how the growth in influence of the scientific and technical revolution on the foreign policy of the U.S.A. might be reflected on the relationships with the Soviet Union and other socialist countries, it becomes necessary to stop first on those changes which the very changeover from the "cold war" to peaceful coexistence can and must introduce into relationships between states with different social structures.

Of course, the nature of the shifts which have occured can be interpreted narrowly: as only recognition by the United States of America of the power relationship in the world and the suicide in an attempt at war against the U.S.S.R. and the shift caused by this of support into other staging areas for the struggle. This element is, of course, present and plays a major role. The entire question consists, however, of whether or not the shifts in the relations of the U.S.A. with the U.S.S.R. and with other countries is of socialism will be limited by these changes.

Concerning the policies of the Soviet Union, the Program of Peace, set forth by the 24th CPSU Congress, sets up for itself broader goals and shows understanding of the principles of peaceful coexistence in strict accordance with Leninist teachings as something a great deal larger than the absence of war. These goals include relief of tension, genuine normalization of relationships and widespread mutually profitable collaboration. And this does not in the slightest measure contradict the fact that the XPAU, the party of Marxist-leninists, proceeds from the fact that any ability of a class struggle between socialism and capitalism. The fact of the manner still is that the character of relations between governments with different social structures will be largely determined by what shape the historically unavoidable competition between capitalism and socialism on the world arena takes. And this question does not boil down to which role is assumed by military, and which by nonmilitary methods of struggle. The shpaes of the struggle in the most nonmilitary staging areas -- in economics, politics, ideology, and also naturally, in the scientific and technical sphere -- also has great significance.

It cannot be forgotten that the very same struggle also took place in these areas during the years of the acute "cold war" taking on, of course, their own characteristic "cold war" forms. /32 In the sphere of economics, the blockade, widest possible limitation of trade and discriminatory practice became these forms.

In the sphere of ideology, speaking of the U.S.A., "psychological war" became the major form of the struggle, making widespread use of all possible forms of undermining propaganda, sermons of hate to the socialist countries and other types of ideological diversions, for the conduct of which special centers of the type "Radio Free Europe" and "Radio Freedom" were created. And if the process of changes, now encompassing international relationships, leaving all this inviolability, leading only to limitation of the sphere of armed combat, then this will in no way signify the end of the "cold war" -- it will also finally be conducted primarily on the nonmilitary staging areas, which are deserving of the name "cold". In order to stop this, and actually assure a lessening of tensions and normalization of the situation, there is a need for something greater, there is a need for a move way from those forms and methods of combat which were sanctioned during the years of the "cold war".

If the question concerns ideology, then this must indicate a move away from propaganda of war and hate toward other countries, from slander and other types of subversive methods. The unavoidable struggle for the mind of man will then be conducted only as a war of ideas, an argument of world outlook, meanwhile with those forms and those methods which will not include losses to peaceful coexistence and the wholesome processes of improving the health of the world situation.

In economics this must be a transfer to those forms of economic competition which would not only not exclude, but would propose widespread international collaboration on the bases of mutual profit, collaboration which strengthens peaceful relations between governments.

Soviet foreign policy also struggles for these changes. The entire question consists of whether or not the capitalist countries, and in particular, the U.S.A. will move to these changes.

Their practical politics are still faced with giving the answer to this question. The changes which have occurred in Soviet-American relations in the last one and a half years give known basis to hoping that it might be positive, that the U.S.A. is also manifesting a readiness to restructure relations in non- /33
military spheres on the basis of genuine peaceful coexistence, a readiness to move to a position where the traces of the "cold war" will be liquidated finally. But the fact that each step in this path will be yielded in a complex struggle does not raise any doubt, since imperialist reaction will begin to resist these changes with all their forces, attempting to spoil them and to turn peace toward "cold war" relations.

It is important also that all this be kept in mind when analyzing the effects of the scientific and technical revolution on the

policies of the U.S.A. with respect to the Soviet Union and other countries of socialism and perspectives of development in scientific and technical relations between capitalistic and socialistic countries. These relations can also be seen as their own form of a battle staging area, which can also take different forms.

The Soviet Union originates in its politics from the fact that the struggle here can and must continue in the form of world wide competition. In a speech at a ceremonial session of the CC CP of Belorussia and the supreme soviet of the Belorussian SSR, L. I. Brezhnev emphasized in this context the following: it can be said without exaggeration that in this very area, in the area of scientific and technical progress lies one of the chief fronts of the historical competition between the two systems today. For our party this makes the further intensive development of science and technology and widespread introduction of the latest scientific and technical achievements into production not only a central economic, but also an important political mission. In the present era questions of scientific and technical progress take on, it can be said directly, a decisive meaning" [19].

This meaning is determined primarily by the fact that the pace and depth of scientific and technical progress during our times still to a great degree determine the course of economic competition between the two systems. This fact is so evident that there is hardly any need for a detailed explanation.

Simultaneously the economic, scientific and technical competition will affect the course of the ideological struggle ever more deeply. And here the increase in the value of some new moments can be expected. The question concerns, in particular, the fact that in the economic competition between the two systems in the condition of the scientific and technical revolution, besides the question of who produces material wealth faster, cheaper and /34
and better, some qualitative moments are also moving toward the forefront to an ever greater degree, moments connected with the fact that toward the achievement of these goals will be directed increasing scientific and technical might and growing power of man over nature, with which social consequences scientific and technical progress comes packaged for the working man, as that progress is reflected on nature and natural resources, on man's environment, on man's health and his spiritual condition, and on the entire development of the human personality.

The scientific and technical revolution showed what kind of negative consequences can rise up in all these spheres in the conditions of capitalism. It is not by accident that the concept of

"zero growth", which is to say stopping on a given level, was born and widely spread in the west as its own type of reaction to them. It is not by chance in the U.S.A. -- in the country where the cult of material wealth has been propagated in its most naked form, where they say a lot about the "quality of life", having in mind overcoming many of the social ills of American society, also including the negative consequences of scientific and technical progress.

The competition between the two systems, together with qualitative indices of economic development, will include these spheres to an ever increasing degree. Also, its course will, to an ever increasing degree determine the course of the ideological struggle, since the latter is unfolding and will continue to unfold not in a vacuum, not around abstract formulae and postulate, but directly around fundamental questions connected with which of the social systems can more fully assure the harmonic development of society in the interests of the workers, in the interests of mankind.

In competition on the staging area of the scientific and technical revolution, socialism possesses historic advantages, which the Soviet Union and other countries of socialism have demonstrated in practice more than once with their historical achievements and their tremendous contribution in the development of world science and technology.

Together with this the CPSU constantly emphasizes that much and diligent work remain in this area and that the advantages of socialism has not realized automatically here either, but requires consistence, capable and much effort. "Socialism and a planned socialist economy opens the broadest horizons for the all-out progress of science and technology", it was noted in a Summary Report of the CC CPSU to the 24th CPSU Congress, "while at the same time the scientific and technical revolution requires improvement of many signs of our economic activity. In other words, this is a tremendous force, favorable to socialism, but it still must be truly mastered" [20]. /35

In characterizing the economic, scientific and technical competition and a form of the historically unavoidable class struggle between capitalism and socialism, it is very important to see its distinctiveness together with this. In this context it should be emphasized that peaceful competition in these spheres not only does not eliminate, but conversely provides for the widespread development of mutually profitable collaboration. And this makes this competition one of the factors in the easing of tension and normalization of the international situation. In entering into relationships of economic, scientific and technical collaboration, both sides, of course, will seek their own gain, but these

gains absolutely do not have to be connected with attempt to inflict losses on the other side. Such an approach, when the gain is understood primarily as causing harm to the other side, is an unalienable part of the "cold war" thinking.

The realism of the Leninist politics of peaceful coexistence consists of the fact that it sees, with all the oppositions of the two systems, the presence of spheres of coinciding interests between socialistic and capitalistic governments, meaning also the possibility for their collaboration in these spheres. The unfolding of the scientific and technical revolution, together with new staging areas for the struggle, also creates new staging areas for peaceful collaboration. This takes on a great meaning not only from the point of view of the national intersts of all countries, but also from the point of view of strengthening peace and peaceful coexistence.

Finally, acceleration of scientific and technical progress and expansion of international collaboration in economic, science and engineering are tasks which are dictated by the objective requirements of social producton in all countries, regardless of the social system to which they belong. This collaboration is becoming in our era an ever increasingly important sphere in international relations. And this is something which not /36
one power, including the United States, can ignore today. At the same time, naturally, recognition of the new realities in the contemporary international situation is occurring in the U.S.A. in an atmosphere of acute internal struggle, conflicts among various points of view and flows, beginning with representatives of "caveman" anticommunism and ending with those who understand the realistic positions. Speaking concretely, three points of view are the most characteristic.

One of these consists of all-out limitation of scientific, technical, economic and trade relationships with the U.S.S.R. and other countries of socialism, in order to "not help the enemy". Not too long ago yet this point of view was the predominant one. Today it has become ever increasingly difficult to defend it, since it is revealed as a vain attempt to delay the development of socialism using methods of blockade, like that harm which limitation of communications with socialist countries inflicts on the U.S.A. itself. Nevertheless, protagonists of similar view have not laid down their arms, although they frequently prefer to behave more slyly, surrounding the development of collaboration with various "conditions", which in essence signify interference in the internal affairs of socialist governments and are frequently deliberately calculated so that they will reject them. Senator Jackson with his amendment to a trade law serves as a sufficiently apparent example. With this the goal consists not so much of artificially

delaying development of collaboration and inflicting losses on socialist countries (this is believed in less and less in the U.S.A.), as harming the processes of easing of tension, and in as much as possible disrupting them.

Another point of view consists of entering into the widely known development of scientific, technical and economic intercourse with the U.S.S.R. and other socialist countries, but exclusively for the purpose of inflicting harm to them. It is adhered to not only by people who have become professionals in developing of recipes for subversive activity against socialist cooperation, on the order of Z. Brzezinski *, but also by some of those who might sense the necessity for reform, but in this matter cannot in any way free themselves from the load of old views and purposes, inherited from the "cold war" period. In /37
the development of these communications they see only an instrument for the struggle against socialism which is "more dynamic", "cheaper" and, primarily, less risky for the U.S.A., one which is called on to fill out the traditional arsenal of political, economic and ideological means. The calculations with this are built on the fact that the dependency of some socialistic countries or others on the U.S.A. can be successfully set up in new forms, thereby weakening the unity of socialist collaboration, and also providing "erosion" and ideological "softening" of socialism, having presented capitalism for the peoples of socialist governments in a new, "improved" version, not to speak of the hopes to fasten bourgoise ideology to scientific and technical changes, securing its access into the socialist world.

In the capitalist countries a lot of argument must presently be heard on these themes. What can be said about them in essence?

Today the socialist concord and the countries going into it are entering into all-round relations with the capitalist governments not in any way from a position of "weakness". The powerful scientific and technical potential of the Soviet Union and the successes in science and in engineering of other socialist countries give them the possibility for entering into such collaboration as equal partners. Moving unswervingly along the course of accelerating scientific and technical progress itself and integrating the efforts of all socialist countries in this area, the socialist concord is receiving the possibility for successfully opposing any of the intrigues of their foes.

* It is present in particular in the view of his book "Between Two Eras". The Role of America in the Technotronic Age".

Another question is that widespread and long-lasting scientific and technical (as well as trade and economic) communications always create definite relationships of mutual dependency. While it is not one-sided, however, but really mutual, this can be seen only as a positive fact, since such relations stabilize the situation, reinforce its normalization and make a turn back to the "cold war" more difficult. And this serves as one of the very reasons for which our party and the soviet government, in striving to make the positive shifts occurring now in international relations irreversable, speak out for widespread development in economic, scientific and technical communications with the U.S.A. and other capitalistic countries.

Concerning the hopes for "erosion" and ideological "softening of socialism, such hopes are also in vain. /38 Some American activists have also been forced to recognize this, in principle seeking out for utilization of scientific and technical communications for the purposes of having an "effect" on socialism. For instance, the American Sovietologist, John Campbell from the Counsel on Foreign Relations, appearing for a subcommission on foreign economic policy of the Congress of the U.S.A., spoke of the futility of these hopes. With this he alludes to the example of the Soviet Union, which during the 1930's, being the only socialist country in the world, connected a policy of industrialization and also widely attracted foreign specialists and the leading technology of the West to this matter, but this, as is well known to all, did not effect either the character of its socialist structure or the or the ideological attitude of its population. It is even more useless to make calculation on this today, when a dynamic world system of socialism exists, not only yielding a third of the world industrial production, but also exporting the products of its scientific and technical thought into the developed capitalist countries.

While for a long time the struggle of opinions of the ruling circles of the U.S.A. ran basically between the proponent of the first and second points of view (i.e. between the hard-headed anti communist and allies of more "flexible" methods, which received in their time the name Doctrines of "building bridges") in recent years the views of those who look on things much more realistically have also begun to be widely spread. Proponents of these views have not, of course, ceased being convinced adherence of capitalism and enemies of communism. Also, speaking out for the development of economic, scientific, technical and trade ties and collaboration with the socialist world, they are not in any way occupied with philanthropy, but first of all have American interests in view. These interests are understood by them differently, however then by the obvious and secret proponents of the "cold war"/ The question concerns people who are cognizant of the truth that in

the nuclear age there is no acceptable alternative to a policy based on principles of peaceful coexistence, and also by those who clearly imagine the profits which expansion of international collaboration in various spheres can bring to the United States themselves.

This has also been increasingly spoken of in the official /39
foreign policy announcements of the ruling activists of the U.S.A. In one of his recent messages to Congress, President Nixon, for instance, formulating the principles of the "new American foreign policy" directly connect it with the scientific and technical revolution and formulates the thesis to the effect that the "problems and complexity of the technical revolution are multiplied to such a degree that solving in many respects is clearly not within the capabilities of separate national governments" and that the period for creating a corresponding structure by means of unification of the "resources and concepts of many states" and improvement of the international institutes of collaboration, which are called to save mankind from the "dark forces of his own nature and from the unfavorable consequences of his technical achievement has already come" [21].

It appears that it would be untrue to see only propaganda in these announcements. Behind them, in as much as it is possible to judge, also stands the objective interests of the U.S.A. in those gains which international scientific and technical collaboration can give them.

Finally, even with the fact that this most powerful capitalist country concentrates almost one fourth of the world scientific resources (approximately the same as the U.S.S.R.), with the present day past, scope and complexity of scientific and technical work, it has become ever increasingly difficult for it too to conduct investigation of the entire front of movement of science and engineering without cooperation with other countries.

Besides this, in some areas of the development of science and technology, in particular in public health, in research of the Pacific Ocean and mastery of its wealth, and study of the atmosphere, space, etc., if not now, then in the near future without widespread international cooperation successful movement forward will become generally impossible. This relates more to the spheres which are already larger in scale, and successful activity in which can become possible in the forseeable future. International cooperation is absolutely necessary, for instance, in areas connected with control over weather and climate. Here, it requires not only the tremendous costs of some projects or others, but also the very scales of the geographic region for which these projects will be calculated. Already today it is also apparent that without international cooperation efforts directed toward maintaining /40

the ecological balance of the Earth, maintaining elementary "inhabitability" of the planet and its future full-valued suitability for life are impossible.

Last but not least the representatives of the ruling circles of the U.S.A. are guided in this, as in many other questions, by the consideration of healthy thought. This is precisely why, as was already emphasized, each step in the course toward easing of tensions and expansion of collaboration is yielded in a complex, and occasionally a bitter struggle. No doubt is also raised by the fact that the very economic and social conditions ruling in the U.S.A. will constantly engender pressure in the direction of solving of foreign policy problems with traditional imperialist means. Together with this another thing is absolutely clear -- the United States is forced to act in this, as in other spheres, in a changing situation, creating serious blocks in the path of imperialist feeble impulses. It can in particular be considered that favorable political conditions for peace and easing of tensions, and also future successes of the U.S.S.R. and the entire socialist concord will sharply restrict the possibilities for using scientific and technical communications for imperialistic purposes, and will allow the constructive aspects contributed into these communications to be ever increasingly apparent. The major successes of the Soviet Union in realization of national and international scientific and technical programs have already at the present time forced the capitalist state to undertake a serious re-evaluation of the possibilities and prospectives of collaboration with the Soviet Union. The positive tendencies are also clearly designated in American politics. This directly allows the conclusion of a number of important Soviet-American agreements on scientific and technical collaboration in a whole series of areas, including public health, preservation of the environment, combined research in space, agriculture, transportation and peaceful use of nuclear power.

The genuine task, a task dictated by the true interests of peoples, interests of peace and social progress, consists today not of the fact that the scientific and technical revolution has become one more staging area for a power struggle. The task consists of another aspect: emanating from an understanding of the tremendous meaning of this sphere of social relationships, of creating a system of international scientific and technical collaboration which would really serve the matter of successful development of science and engineering, thereby accelerating the economic and cultural development of all countries and all of mankind and its progress, simultaneously strenghthening peace and international safety. /41

Today the two class positions -- socialist and capitalist -- are colliding in modern international relations on the staging area of the scientific and technical revolution, as in other of their staging areas. The struggle between them, however, is unfolded not only along the question of namely who -- socialism or capitalism -- will be victorious in scientific and technical competition. This is, of course, one of the important basic questions determining the course of historical events. The matter does not, however, boil down to this. The struggle simultaneously goes on along another question: namely, which system of international economic relations will be created, a system perpetuating relationships of mastery and subjugation, exploitation and dependency and the advantages of some at the expense of others, or a system which asserts the principles of equal rights, mutual gain and fair international collaboration.

The Soviet Union, in whose foreign policy the course for all-out expansion of mutually profitable scientific and technical collaboration with all countries, collaboration which is international in the broadest sense of the word, speaks out for such a system.

This course responds to the interest of the scientific, technical and economic development of our country, as all other countries. This course also responds to the interests of peace, strengthening the principle of peaceful coexistence in the entire system of international relations.

CHAPTER II

CONSEQUENCES OF THE EFFECT OF THE SCIENTIFIC AND TECHNICAL REVOLUTION ON THE FOREIGN POLICY OF THE U.S.A.

The scientific and technical revolution in the United States, /42
as in other capitalistic states, was manifested inevitably as a revolution in branches of science, engineering and production which were connected with military requirements. The development of cybernetics, for instance, if one is to believe N. Wiener, who laid its bases, were largely accelerated by a striving to find theoretic bases for control of antiaircraft artillery fire. The scientific and technical revolution in the military area received the name military-technical revolution in the U.S.A.

The greatest successes in the area of science and engineering became in the hands of the imperialistic circles of the U.S.A. to a significant degree weapons which served their military and political aims.

The military and technical revolution effected the foreign policy of the United States in the most direct manner. Being a manifestation of the process of scientific and technical development, the scientific and technical revolution increasingly frequently places the military policy of the U.S.A. before the fact of noncorrespondence of the effective military and strategic concept to the next technical level of armament and excites the American strategists to reevaluate their previous directions.

In the opinion of Herman Kahn, who headed up the Gudzonovskiy Institute of the U.S.A. (one of the leading scientific research centers of the U.S.A. -- a "think factory" occupied with problems of strategy), if one begins from a position in which the qualitative difference between the weapon system of the First and Second /43
World Wars represented the result of the technological revolution alone, then during the period after the Second World War similar qualitative changes in the technology of the strategic "central" war would occur approximately once every five years [1]. Therefore, he says, from 1945 through 1970, wars might have (theoretically) been conducted between the powers leading in a military-technical respect, wars which, keeping in mind the qualitative leaps in improvement of weapon systems and accompanying changes in strategic concepts, could have been named the third, fourth, fifth, sixth and seventh world wars !

The creation of atomic weapons is considered to be the beginning of the military-technical revolution in the U.S.A. The mass production of nuclear weapons and new means for their delivery

(rockets) lead to a revolutionary turn in a whole number of branches of engineering and industry, to creation of many new technological processes and whole branches of industry, and this in its turn caused essential qualitative transformations and other components of military power. As a result the military-technical revolution lead to the sharp quantitative increase and qualitative improvement of means of destruction, means of their delivery and the technology of automatic control of forces and cardinal changes in the structure of the military potential of the U.S.A. and the American armed forces.

The atomic bomb, created by the U.S.A. in deepest secrecy from their military ally -- the Soviet Union -- and feverishly developed in the summer of 1945 to a state of readiness was seen by the American ruling circles as the ideal means for establishing world hegemony. Using it, by means of the threat or use of force everywhere, where danger not only to the interests of Washington, but also to certain links of the imperial camp would arise, the ruling circles of the U.S.A. intended to hinder the worldwide revolutionary process. The "Truman Doctrine", which made up the cornerstone of this policy, emanated from a position in which as a result of the war, only two "poles" of force remained in the world -- the U.S.A. and the U.S.S.R., the fight between which determines the major content of the entirety of world politics. The United States, tearing away from the course of President F. Roosevelt toward collaboration with the Soviet Union, changed over to confrontation with the Soviet Union, surrounding of the Soviet Union with the circle of military bases and aggressive military blocks and unfolding of the "cold war", which became one of the basic forms for the struggle with socialism. /44

The basic (after creation of the atomic bomb) qualitative changes taking place in the post war years in the areas of technology relating to strategic weapons can be considered the following: 1. Creation of improved types of jet engines for airplanes. 2. The appearance of thermonuclear (hydrogen) weapons. 3. A reduction in the weight of nuclear warheads with a significant increase in their explosive force. 4. The appearance of ballistic rockets of the first technological generation with liquid jet engines. 5. Creation of atomic power units for surface and submarine boats. 6. Creation of solid fuel ballistic rockets. 7. Creation of rapid action calculating and solving machines on semiconductor technology and general miniaturization of systems of control, observation and communication on the basis of the newest achievements of electronics. 8. Creation of systems of cosmic reconnaissance and communication and the practical possibility for producing weapon systems acting from space. 9. The development on one hand of a more or less effective antiballistic missle (ABM) system and on the other, a wide range of means for defeating and ABM, including multicharge (cassette) warheads for intercontinental ballistic

missles (ICBM) with individual guidance of the charges to the targets (the so-called MIRV system).

The effect of the scientific and technical revolution on the foreign policy of the U.S.A. is felt in a twofold manner: the American theoreticians and American leadership must consider not only their own successes in the matter of creating the newest weapon systems, but also take into account the achievements of potential enemies. The Soviet Union, forced to take as responsive steps corresponding measures to strengthen its own defense capabilities, as is well known, during the post war years more than once proved to be ahead in the area of designing the newest weapon systems, and the unfailing in the U.S.S.R. of one weapon system or another frequently undermine the American strategic positions, based on underevaluation of the scientific and technical and industrial possibilities and capabilities of a socialist country.

Under the effect of the military and technical revolution, /45 conducted with a very rapid renewal of technical ideas and principles in the design of weapons and progressing expansion of technological possibilities in its actual production, the arms race in the U.S.A. came upon its own logic of development to a known degree: a weapon was created not only because a real and urgent requirement arose for renewal of the weapon system, but also because it was technically possible to create. "If you can make it -- make it!" -- this is the formula with which, according to the words of Yu. Fyubini, and one time occupying the post of deputy chief of the Directorate of Military Research and Development of the Pentagon, for a long time determined the approach of the U.S.A. Defense Department toward creation of strategic weapon systems [2].

In the ruling circles of the U.S.A. there were no fluctuations relative to directing the scientific and technical revolution into the channel of the "politics of force" for the purpose of assuring military and technical superiority over the U.S.S.R. Here is where the politics of the arms race, warming up with the military and strategic decisions on the American governments after the Second World War, find their origins.

The most important features of the military and technical development of the U.S.A. after the war were the rapid rates and constant presence and even acceleration of the process of replacing one generation of a weapon with another. For military thinking in the U.S.A. during the post war years exaggeration of the possibilities of American science and technology by comparison with the possibilities of potential enemies was characteristic, which did not deter the government at the same time from frightening congress and public with the "Soviet threat". The American military hoped

that the high rates of military and technical progress would give them the possibility for creating their own type of "absolute weapon", with whose availability they could operate from a position of "superior military and technical strength" and dictate their conditions to the world.

At first the Washingtonian leaders and military planners set their hopes on an American atomic monopoly, considering that this monopoly would continue for several years in view of the "backwardness" of the other countries 3, and trying at the same time to perpetuate their monopoly (the "Baruch Plan"4). However, in as much as the monopoly of the U.S.A. was rapidly destroyed, since the Soviet Union created its own atomic weapon, the American government placed its stake on the "super bomb" /46 (a thermonuclear weapon). When it turned out that in the area of creating a thermonuclear weapon the ULS.A. not only did not lead the U.S.S.R., but actually lagged behind it, the strategists of the Pentagon decided that, having made jerks in the improvement and accumulation of tactical weapons, they would assure for themselves the decisive superiority directly on the field of battle.

The launching of the first artificial earth satellite by the Soviet Union sobered the American strategists to significant degree, perhaps giving rise to doubts in them as to the possibility of achieving a position of unconditional military superiority over the U.S.S.R. However up until recent times the ruling circles of the U.S.A. hoped that the active and all-out utilization of the fruits of the military and technical revolution would give them in the future the possibility of achieving a position of "absolute force", which the American theoreticians understand to mean the achievement of a capability for inflicting first strike on the enemy [1]. The well-known American specialist on questions of strategic theory Jeremy Stone emphasized that "the U.S.A. Department of Defense has spent billions of dollars in order to create for our rockets the possibility of destroying Soviet rockets on the ground. Our strategic position in this sense has always been the strategy of first strike and not only a position of a responsive strike. Each serious investigator of these problems knows that this is exactly the way this matter is" 5.

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[1] Modern military theory understands "first strike" not as simply the fact of a strategic attack, but a rocket-nuclear strike on the enemy of such a destructive force that it must actually disarm him, so that his responsive strike does not inflict significant ("unacceptable") losses on the attacking side. The former U.S.A. Secretary of Defense, R. MacNamara defined the threshhold of "unacceptability" for any industrial nation of the 20th Century as a loss of one fifth or one fourth of its population and 50% of its industrial potential.

However, as U.S.A. Secretary of Defense R. MacNamara finally publicly recognized, the United States was simply physically not capable of creating rocket-nuclear forces which would be sufficient for a "total" (which is to say disarming) strike on the U.S.S.R. Appearing in 1964 before the Armed Forces Committee of the House of Representatives, he noted that in the U.S.A. there are not the forces "which would allow us (the U.S.A. -- author), if we struck first to weaken the Soviet forces of retribution sufficiently so that the losses which they could then deliver to the population and industry of the U.S.A. would be reduced to the "acceptable level", whatever level was implied here" 6. /47

"We" (which is to say the U.S.A.--- author), wrote MacNamara, "do not possess capability for first strike against the U.S.S.R.... both of our countries have strenghthened their capabilities for second strike -- actual forces of retribution -- to such a degree that the capability for first strike has moved out of the reach for either of the countries" 7.

MacNamara also appeared with a thesis of the "Decreasing Return" of capital investments into strategic weapons systems in modern conditions, when each of the two leading nuclear powers possesses an arsenal of strategic weapons which is sufficient to defeat many times, or, as the Americans express it "overkill" for the same purpose. "A country can reach a point", noted MacNamara, "when in buying more military hardware it is not buying more safety for itself, and we have reached that point" 8.

However, these sensible calculations began to find any sort of reflection in the practical activity of the American government only significantly later. And in those years, recognizing the illusiveness and impracticability of hopes for achievement of a position of "absolute power", a position of first strike capability, on the U.S.S.R., MacNamara despite all his sound judgements and evaluations continued the strategic arms race even more zealously than his predecessors in the Secretary's post and continued the race of strategic arms, increasing the American arsenal of "overkill". Measures accomplished during his service in the post of U.S. Secretary of Defense, such as deployment of a fleet of "Polaris" atomic submarine-missle carriers, the decision to set into production the casette warheads of the Mirv system, the beginning of construction of the U.S.A. antimissle defense system and development of work on other new systems of strategic weapons, also testified to this. "The scope and balance of our offensive forces was determined by conceptions of strategic superiority" 9, acknowledges K. Keyzen, who in 1961-1963 occupied the post of Deputy Special Presidential Assistant on questions of national security.

How can this position be explained? In the first place, /48
naturally, with the entire class character of U.S.A. policy, and their stake on force. But there were also additional reasons. President Eisenhower, in leaving his post, warned the American nation not only about the danger of strengthening the influence of the military industrial complex, but also of the fact that "government politics can become a prisoner of the scientific and technical elite" 10. In actuality, what happened was something else: the interests of the military industrial complex and the inertia of the military-technical revolution, uncovering increasingly newer and newer capabilities for improvement of the "overkill" arsenal, became factors of decisive effect in the strategic decision of the U.S.A., which boiled down to the lack of sound thought of certain leaders, who theoretically would have recognized the lack of perspective and unthinkability of increasingly newer and newer laps in the strategic arms race. And all the same the incapability of the United States after efforts continued for a quarter of a century to achieve a position of "strategic superiority" with respect to the U.S.S.R. finally brought the American leaders to conceptual acknowledgement of the advisability for supporting the strategic balance with the Soviet Union on the level of equality or "parity", on the basis of mutual agreement. In his foreign policy message to the U.S.A. Congress on February 9, 1972, President Nixon announced: "Our goal consists of stabilizing the strategic equality on the basis of mutual restraint and the signing of agreements which would not give anyone one-sided advantages. We recognize that only equality in strategic weapons which is found together can serve as a common basis for maintaining security" 11. Another manifestation of this new position of the U.S.A. was the signing in May of 1972 of the agreement with the U.S.S.R. on limitation of antiballistic missiles systems and a temporary agreement on some measures on the area of limiting strategic offensive weapons. This agreement was an important step in the direction of halting the strategic arms race. It received new affirming collaboration in the agreement signed between the U.S.A. and the U.S.S.R. during the visit of CC CPSU General Secretary Comrade L. I. Brezhnev to the United States of America in June of 1973.

The military-technical revolution, which lead to creation of nuclear missile weapons of collosal destructive force, also caused /49
its own type of turnaround in the area of strategy. The most important result of this turnaround was strengthening of politicization of military strategy. Not only the monstrous destructive force of modern weapons and the global scales of planned military operations, but also the very cost of modern strategic weapons systems placed military strategy in inseparable communication with politics. Not only the future possibilities of the army on the field of battle, but also to a definite degree the lax capacity of the government during peacetime depends on the direction of military

construction, since military construction itself is one of the most important factors in internal, and even more so in foreign policy.

The military and political strategy borne in the new conditions represents a singular mixture of military and foreign political strategy. This strategy in American publications and offical documents frequently called the "strategy of national security", in order to emphasize its difference from purely military strategy, which is, in the words of the former chairman of the U.S.A. Joint Chiefs of Staff General M. Taylor, "In proper perspective, only part of the national strategy and is formulated on the third level of the echelons of national planning" 12.

Another important new factor which is connected with creation of nuclear missile weapons was the appearance of a special type of armed forces -- forces of strategic designation, capable of independently solving strategic problems. The formation of forces for strategic purposes designated itself as a cardinal qualitative leap by comparison with the preceding practice, when solution of strategic problems was possible only by means of using all the armed forces of a government during the course of more or less prolonged military campaigns with practical successes growing into operational ones, and operational ones growing into strategic ones. The appearance of these possibilities lead to the most important changes in military strategy, although a whole number of aspects in the theory of the nuclear missile conflict, as American theoreticians note, still requires further development.

The military and political strategy of the U.S.A. gradually considered the consequences of the appearance of new military and technical systems, but together with this it unavoidably collided with the succeeding problems of strategic planning. It frequently occurred so that it proved to be faced with the necessity for new strategic re-evaluation, dictated by the headlong development of science and military equipment. Constantly forced to accustom itself to changes in military equipment, the military and political strategy of the U.S.A. respected at the same time the load of fundamental impressions and concepts and turned out to be somewhere halfway between the new capabilities of the weapons and the obsolete strategic doctrines. As H. Kissinger noted, "Changing equipment has always caused a change in the strategic positions more rapidly than it could be invested in the form of doctrine" 13. /50

The creation of forces of strategic designation gradually brought the U.S.A. to formulation of two schools of military theoreticians, who evaluated the role of strategic nuclear missile

weapons in modern warfare in different ways. One group of theoreticians, which can be called the advocates of "strategic monism", from the very beginning discounted the military role of nuclear weapons, considering them by far not the only type of weapons suitable for use in future conflicts. This group of theoreticians (which included such American "civilian" strategists as H. Kahn, A. Wolstetter, D. Brennan and S. Possoni, the leadership in the command of the American air force, whose point of view was clearly expressed in the works of T. Power, C. LeMay, N. Twining and others) was achieved during the period when the Eisenhower government was in power. The American doctrine of "mass retaliation", dveloped under the influence of the concept of the "strategic monism" school postulated the use of a strategic nuclear weapon practically for accomplishment of almost any military missions by means of attack by the United States with mass strikes "in places according to our own selection" 14, as U.S.A. Secretary of State J. F. Dulles, officially pronouncing the new strategy in January of 1954, emphasized.

The strategy of "mass retaliation" was actually born in the nuclear variation of the Dewey-Mitchell theory of the air force, which considered strategic bombing as a decisive, key factor in assuring a victory in a military conflict. This theory received great popularity in American aviation circles after the Second World War, regardless of the fact that experience in the strategic /51
bombing of Germany by the aviation of the allies during the Second World War did not support the conception of Dewey. However, representatives of the American school of "strategic monism" considered that atomic bombs finally give the possibility for "full-valued" realization of the theory of an air war, which was also the basic conceptual premise laid at the basis of the strategy of "massive retaliation".

It must be noted that a characteristic feature of the American strategic doctrine, brought into life by the appearance of the nuclear, and later nuclear missile weapons, was the fact that it was born not out of the generalized experience of previous wars, but as a pure "idea", unproven by experience. In view of the fact that the only tangible and known element of the new atomic strategy, which arose as a result of a gradual trying to understand the meaning of the revolutionary qualitative turnaround in means for armed struggle, were these very means, American strategic doctrine proved in some measure to be in the grip of military equipment as the only defined factor among a whole series of undefined ones, which was explained by the almost total absence of real impressions on the character of war in conditions of massive use of nuclear weapons. This is caused, on one hand, to a significant degree by the mathematically abstract approach to signing of strategic operations with utilization of nuclear weapons, and , on the other, by the actual fettishism attached to this weapon.

It is sufficient to read American military and even scientific and popular magazines of the first postwar decade, when a nuclear war was depicted to the majority of American theoreticians as a particularly one-sided directed air-atomic blitzkrieg, in order to understand how deeply the ecstasy of the "technological might" of the U.S.A. colored the entirety of American military thought.

Opposing the school of "strategic monism", a wide group of theoreticians representing the school of "strategic pluralism", which recognized the exceptional value of the nuclear missile weapon for accomplishing major strategic missions in a large war, together with this began from the necessity for maintaining a wide set of armed combat means and flexible utilization of armed forces, including conventional armed forces and weapons, depending on the situation ("the nature of the threat"). The point of view /52
of this group, to which the majority of American civilian and military theoreticians belong (the best known of them are R. MacNamara, H. Kissinger, M. Halperin and R. Osgood as the majority of the leaders of the army and marines, whose views were especially clearly represented in the appearances and books of the American Generals O. Bradley, M. Ridgeway and M. Taylor), found its reflection in the Kennedy-MacNamara strategy of "flexible reaction".

This strategy delineated the principle dividing line between a so-called central war with participation of major enemies, a war which had become undesirable for the U.S.A. in conditions of unchanging power relationships, and local wars on the "periphery", which , in the opinion of American theoreticians, could be conducted on "low levels of utilization of force" which were not dangerous for the U.S.A. itself. In connection with this approach the strategy of "flexible reaction" rested for the most part on utilization of conventional armed forces and weapons for accomplishing the military mission of the U.S.A., leaving strategic forces as a major reserve in case of a large war with a major enemy, which is always understood to mean the Soviet Union. Since in view, however, of the equality of the nuclear missile potentials of the U.S.A. and the Soviet Union the American leaders and theoreticians were forced to consider the consequences, suicidal for the U.S.A., of nuclear missile aggression against the U.S.S.R., they could not but disavow the most provocative moments of the strategy of "massive retaliation", stipulating the desire of the U.S.A. not to be the iniator in the unleashing of a "central" strategic conflict.

"Our goal", said MacNamara frankly, "is to defeat the Communists". However, he realistically added, "I do not believe that we can achieve such a victory by entering into a strategic nuclear war... my personal opinion is that we cannot win in a nuclear war, a strategic nuclear weapon, in the normal sense of the word 'win'"[15].

The basic elements in American strategic theory as applicable to strategic nuclear missile forces became the concept of "nuclear deterrence", which relied on the threat of attack by means of a responsive strike of "unacceptable losses" against the side which first attacked.

During recent years due to the effect of the change in the overall strategic situation in the world, the weakening of the global positions of the U.S.A. and the more sober possible consequences of a large nuclear war for the U.S.A. itself the positions of the allies of the aforementioned direction have drawn closer together to a significant degree. In the U.S.A. presently very few theoreticians consider an unlimited nuclear missile war to be acceptable: even the most hawkish representatives of the "strategic monism" school mass speak out for the necessity of some limitations or others in the use of nuclear weapons even in a large strategic war (the concepts of "nostrike" on cities", selective and demonstration nuclear missile strikes and so forth). On the other hand, "limited" use of tactical nuclear weapons is beginning to be envisioned by many theoreticians of "strategic pluralism" as possible in certain situations. The narrowing in the gap between these previously sharply different points of view have found its reflection to some degree the new strategy of "realistic deterrence". /53

The colossal cost of modern strategic weapons system, requiring a powerful economic base and development of supermodern branches of science and industry for its creation, lead to a situation in which the task of constructing modern strategic forces in their full scope proved to be technically and economically within the power of only a few governments. From the governments of the capitalist world, in the essence of the matter only the United States attempted to accomplish this mission in full measure. This does not mean, naturally, that nuclear missile technology is inaccessible to other countries.

With concentration of the efforts of a government on strategic building any modern industrial country is capable of creating and maintaining a "nuclear deterrent factor", and as specialists have noted, with further spreading in the world of the newest technology and reduction in the costs of production of fissionable materials the possibilities of a large number of countries acquiring nuclear weapons are increased.

Nevertheless it is impossible not to see that even for the United States-- the most powerful government in the capitalist world-- the consequences of an unchecked strategic weapons race have proved to be extremely heavy. This is expressed primarily in the sharpening of internal socio-economic problems of the U.S.A., which forces an ever increasing number of representatives of the /54

of the American ruling class to talk about the necessity for re-examining government priorities for the purpose of allocating more attention to prevention of internal problems. It is also expressed in the weakening capability by American goods to compete on the world capitalistic market.

It is understandable that embarkation on the path of a similar arms race at the same rates of speed in this area by other capitalist governments, possessing significantly less resources than the U.S.A., would have lead to even more serious economic and social consequences. Even those incomparably more modest at efforts in creation of strategic nuclear weapons which were undertaken by England and France were felt extremely negatively on their economics.

All these consequences of a strategic arms race in the capitalist countries create a whole set of mutually interwoven problems: on one hand, the European NATO countries are still striving to maintain the "nuclear umbrella", as if provided by the United States. On the other hand, they are rising up against the American hegemonism in NATO although this hegemonism largely emanates from the continuing military and technical superiority of the U.S.A. by comparison with their capitalist partners. Together with this a stepup in the assault on the foregin trade positions of the U.S.A. on the part of their capitalistic competitors is explained by many in the U.S.A. by the advantages which these countries have in the very view of the fact that the spend a smaller part of their gross national product than the U.S.A. on weapons. This complex problem create both definite centrifugal and centripetal forces among the western military allies, although apparently during recent times the sharpening of the economic and political contradictions between the countries of Western Europe and Japan on one side, and the U.S.A. on the other is also beginning to tell on their military relationships to a definite degree.

American strategic theoreticians recognize the facts of increasing centrifugal forces in the military unions headed by the U.S.A., and one of the major means for retaining these allies is seen the military and technical leadership of the U.S.A. A broader conception of the fruits of the scientific and technical /55
revolution by the U.S.A. to its major partners in the military blocks, and a tighter "binding" of their military complexes to the American global network of technical intelligence, communications and early notification is considered by some Washington theorists as almost the only means capable of assuring the maintenance of American hegemony in the various alliances.

The scientific and technical revolution affected the American military complex not only in the plans for quantitative increase and qualitative improvement of weapons, particularly strategic ones, but also in the plan for improving the organizational

structure of its complex and for increasing the effectiveness of the management of the U.S.A. armed forces. In accordance with the National Security Act of 1947 the leadership of the armed forces of the U.S.A. was reorganized fundamentally and the degree of centralization of control over the branches of the armed forces was increased by means of creating a single Department of Defense [16]. However, right up to the beginning of the 1960's, regardless of the passage by the U.S. Congress of a number of new acts, expanding the authority of the Department of Defense (the Acts of 1949, 1953 and 1958), the advantage of a single centralized leadership for the armed forces remained largely unrealized. Only in 1961 with the coming of Robert MacNamara to the post of Secretary of Defense were the possibilities laid in unification of the U.S.A. armed forces under a single leadership utilized in reality for the first time. A statistician and an economist by training, MacNamara attracted into the staff of his apparatus a large group of mathematicians and programmers--specialists in systems analysis, who critically re-examined the practice of control of the U.S.A. military complex and proposed a whole series of essential innovations, based on scientific methodology.

The three most important innovations in the manner of management of the Pentagon with its entire military complex where the changeover to the practice of distributing military allocations of the budget according to a functional designation; evaluation of the feasibility of new weapons system according to a criteria of cost effectiveness, and as a synthesis of the two measures indicated above, the development of a system: planning--programming--budget finance (PPB), they had tried to create on a rational approach to planning of the material, technical and financial activity of the Department of Defense 17. /56

Together with the traditional financial military structure, military training, rear support and so forth, particularly among the branches of the armed forces through the corresponding departments of the army, air force and navy, all activity of the U.S.A. Department of Defense was grouped into nine, and later into ten basic purpose programs 18, according to which centralized financing and control over the execution of the measures outlined began to be accomplished. This approach provides the possibility for eliminating duplication and parallelism in the area of military supply and military program accomplished by the various branches of the armed forces to be eliminated to a significant degree, although the traditional rivalry between them still did not allow the principle of centralization to be conducted through to the end.

In accordance with the functional approach, creation of united and specialized commands of the U.S.A. was accomplished, and the

operational management of all military units in the corresponding theatres was entrusted to them 19. The commanders of joint and specialized forces were placed under the direct control of the Secretary of Defense.

The criteria relating to the cost of one weapons system or another with its projected combat characteristics began to be widely used during ordering of military products and selection between competing projects proposed by different suppliers.

The introduction of evaluating a weapons system according to a cost effectiveness criterion was an extremely important measure signalling the setting of the selection of weapons systems on a scientific basis in conditions of colossal and constantly continuing rise in the cost of weapons systems with simultaneous limitation of resources.

According to evaluations of American specialists, in the 1940's and 1950's, new weapons systems "justified their existence" and expenses for their maintenance for a period of 8-10 years, while at the beginning of the 1960's, this period began to be reduced to 5-7 years. With this it should be considered that within the framework of a cycle of development of one weapons system or another replacement of several of its generations or modifications occurs. For instance, the solid fuel "Minuteman" ICBM appearing in the elements of the U.S. air force in the beginning of the 1960's, went through three generations over ten years in its development, like the rockets for the "Polaris" submarines. /57

Table 1 gives an impression of the rise in the cost of weapons systems in the U.S.A. in conditions of the military and technical revolution.

Rise in Cost of Weapons Systems in the U.S.A. TABLE 1

	Mill. Doll.	Mill. Doll.	Rise in %	Mill. Doll.	Rise in % by comparison with 1945
Aircraft Carrier	55	545	991	951[3]	1729
Submarine	47	200	425	1500[4]	3200
Strategic Bomber . . .	0.2	30[1]	15000	35[5]	17500
Fighter	0.05	6.8[2]	13600	20[6]	40000

TABLE 1: Notes:

[1] The approximate cost of a new B-1 strategic bomber, built by the"North American Rockwell" company and according to the data of 1969 presented by Assistant Secretary of Defense B. Shillito.

[2] The cost of an F-111 fighter.

[3] Approximate cost of the fourth U.S. Atomic Aircraft carrier (CVN-70).

[4] Initial approximate evaluation of the cost of a submarine of the "Trident" system.

[5] The cost of a B-1 bomber, according to evaluation of 1972 (the number cited by the chief of the Directorate of Military Research and Development of the U.S. Department of Defense J. Foster).

[6] Approximate cost of a new F-14 carrier-based fighter.

BASIC SOURCES: "U. S. News and World Reports", Feb. 3,1969, p. 31; "Hearings before the Committee on Armed Services, U.S. Senate, 92nd Cong. 2nd Sess. on S. 3108, part 2", pp. 1038,1040, 1059-1060.

"In each case", emphasizes W. Kaufman, assistant to MacNamara in formulation of the new strategic concepts, "we are interested not only in the military value of the corresponding request, but also in its costs. In our view, the military effectiveness and costs are only two sides of a single medal and must be considered in combination during the process of the decision for acceptance. For instance, a decision as to how valuable for our security is /58 a five percent increase in our capability to destroy a given system of targets can be made only in connection with consideration of the cost of acquisition of this capability, since we live in a world in which resources are limited" 20.

An assistant to MacNamara in financial and control service, systems analyst specialist C. Hitch expressed the cost effectiveness principle with even more laconic formula of "not chasing after 'quality', when for the same means, spending on 'quantity', could be more effective, and vice versa" 21.

However, even introduction of the cost effectiveness criteria did not eliminate colossal abuse in filling military orders by the companies of the military industrial complex, which saw the Department of Defense budget as a bottomless feeding trough and tried in every way to raise the cost of products with the tacit turn connivance of the military department. At the end of 1971, chief revision directorate of the U.S.A. communicated, for instance, that 45 major weapons systems, ordered by the Department

of Defense, would cost the government 35.2 billion dollars more then was determined by preliminary calculations [22].

Simultaneously the military effectiveness of the planned systems very frequently proves to be absolutely not corresponding to the requirements of the purchaser, regardless of the astronomical rise in the cost of one system or another during the process of filling the order. A typical example of this is the history of creation of the shipboard rockets of the "surface to air" class of the "Tartar", "Thallus", and "Terrier" type. They had to be rebuilt three times before they began to more or less correspond to the initially established specifics. A similar rebuilding, as Senator Russell noted, cost the American treasury one billion dollars [23]. Another well-known example is the B-70 strategic bomber, for which the "North American Aviation" company received several hundred million dollars, but which proved to be obsolete at the moment when the prototype of this airplane was manufactured, in view of the fact that it was not accepted into the arsenal [24]. The cost of the giant C-5A "Galaxy" military transport airplane, the order for which was received by the "Lockheed" firm was increased by many times. Finally, according to the acknowledgement of the Deputy Assistant Secretary of the Air /59
Force A. Fitzgerald (for this acknowledgement he was consequently fired), it exceeded the initial planned sum by double [25]. Under popular pressure the air force reduced its initial program for construction of 120 "Galaxy" airplanes down to 81. However, their cost amounted to 4.6 billion dollars, to opposed to the 3.4 billion dollars which was initially allocated for the purchase of 120 machines ! [26] Similar examples can be presented by the score.

In attempts to establish some barriers against shipments of poor quality products by firms, with the coming of M. Laird to the post of Secretary of Defense the U. S. Department of Defense introduced in ordering weapons systems the principle of "fly before buy", i.e. the principle of final selection of a contractor for manufacture of the corresponding system on the basis of evaluating the effectiveness of an already built prototype, and not a project, as earlier. However, this principle, up to the present time, works frequently only in theory, since any military industrial company will refuse to begin production of an expensive military system without being sure that the basic contract for the manufacture of the given product will go to it.

Finally, the most important organization and economic measure allowing improvement of the financial activity of the Pentagon, was creation and introduction of the PPB system: planning--programming--budget finance. The leading document in the area of military strategy of the U.S.A. from the beginning of the 1960's became the annual five-year program of military construction, which was developed by the U.S. Department of Defense on the basis of the

PPB principle. This program forsees projection of military draft plans for five years ahead and their annual re-examination and annual allocation of corresponding budgetary means on the basis of the establishment of this program.

Explaining the essence of the new approach to members of the Armed Forces Committee of the American Congress, R. MacNamara said: "In view of the great complexity of modern weapons and the lengthy period of time required for its construction, its colossal combat power and extremely high cost, we consider that a sensible selection of major weapons systems corresponding to military goals and missions has become a key decision, around which almost all the remaining part of the defensive program revolved. However, /60 those calculations which these decisions entail in the present and in the future, cannot in full measure be evaluated, if both definite programs and the cost of these programs are not projected a number of years ahead in an ideal variation -- to the entire life cycle period of one weapons system or another. Since such long-termed projections are very difficult to outline with any degree accuracy, we have settled on a five year period. This period is sufficiently short so that evaluations are yielded with acceptable accuracy, and at the same time sufficiently lengthy so as to give a better approximate impression of the final full cost of the program" [27].

American planners emphasized that introduction of the PPB system, based on widespread and all-out use of investigation of the effectiveness of expenditures or systems analysis and comparison of alternate paths to achievement of these goals, is a direct result of utilization of the achievements of the scientific and technical revolution in the organizational and economic area. Together with this, American experts do not conceal the fact that they drew many of their ideas with respect to long-term planning and bringing expenses into line with effectiveness from the experience of the planned economy of the Soviet Union. C. Hitch in the book, "Defense Management" directly relied on the Soviet planning approach, emphasizing the value of "the most rational and effective utilization of resources" [28].

The coming into power in the U.S.A. of the Republican administration lead to new discussions and direction toward still more effectively utilizing the achievements of the scientific and technical revolution in order to improve the structure of control of the military complex and the procedure for making the most important decisions in the military and political realm, in particular the procedure for selecting strategy. During the course of a year (from July 1969 to July 1970) the organization, structure and operational activity of the U.S. Department of Defense was subjected to careful re-evaluation by a specially-named presidential "blue-ribbon" commission made up of 16 well-known business men, social

activists and scientists of the U.S.A. The commission, working under the guidance of the chairman of the board of the "Metropolitan Life Insurance Company", Gilbert Fitzhugh, paid a great deal of attention to questions of utilizing the achievements of the scientific and technical revolution in the area of methods of analysis and control. /61

In particular, the Fitzhugh commission recommended the establishment in the Pentagon of a group of complex evaluations "net assessment" for the purpose of "accomplishing complex evaluation of military capabilities and potentials of the U.S.A. and foreign powers and coming up with proper recommendations" [29]. The commission also spoke out for more careful and comprehensive long-termed planning, proposing creation in the Pentagon of a special group which would combine "methods of complex evaluation, technological projection, budget planning and so forth"[30].

Both of these recommendations were put into effect. The post of director of complex evaluations, under which goes the corresponding group of specialists, and the post of assistant Secretary of Defense for long-termed planning were created in the apparatus of the Department of Defense.

In explaining the essence of the method of complex evaluations, M. Laird said: "Complex evaluation is the comparitive analysis of those military, technological, political and economic factors, which threaten or potentially threaten the realization of our goals of national security, together with those factors, presently at hand or potentially capable of being realized,which would promote achievement of these goals. Using this process we will receive the possibility of determining which way to use our resources with the most effectiveness..." [31].

The question, therefore, touches on proving and developing further the methods of systems analysis and programming (including evaluation according to the cost effectiveness criteria), introduced into the Pentagon by R. MacNamara.

The necessity for a broader approach to the problem of competition and struggle between the two systems in the world arena, along with the failures of American foreign policy, deterioration of the position of the U.S.A. in the world capitalist economic system and aggravation of internal socio-economic problems of the U.S.A. have forced the American government to look once again at the problem of distributing national priority in the conditions of the continuing scientific and technical revolution, or in other words, at the problem of coordinating military and nonmilitary paths and methods for accomplishing the "state mission of the U.S.A." and selecting the proper ways and means.

In connection with this the new managers of the Pentagon, /62
who arrived to replace the "MacNamara command", also felt that the too one-sided orientation of MacNamara in the military-technical and financio-organizational aspects of the acitivity of the U.S.A.'s military complex served to a definite degree as the horizon of the military, and as a result of this the political management of the U.S.A., and lead to a situation in which the extremely important and broad group of both internal and external factors on the political, social, civilian economic and psychological order, having the most immediate relation to the problem of "national security" in the broad sense of the word were to an ever increasing degree let slip from sight. This is also where introduction of the method of "complex evaluations" and more coordinated a long-range planning came from. Growing understanding of the lack of perspective in purely military and technical solutions to the problems of the balance of power in the world (regardless of their continuing insistent striving towards "technological superiority") was one of the important factors bringing about the readiness of the American management to enter into definite limitations in the business of quantitative increases in strategic armaments by means of mutual agreement with the U.S.S.R., based on the principle of assuring equal security for both sides.

The military and technical revolution had an extremely unique effect on the power relationships inside the U.S.A. military machine. Representatives of the various branches of the American armed forces began to see the system of strategic weapons, in which the achievements of the military and technical revolution are embodied most rapidly and most fully, as an important factor of "prosperity" and maintenance of future viability of the corresponding traditional branches of the armed forces. During the first period after the Second World War the accumulation, effected by the U.S.A. of atomic weapons and the strategic means for its delivery--intercontinental bombers, lead to a situation in which the air force, under whose command the corresponding means were located, occupied the dominating position in the American military complex. This was expressed in the corresponding distribution of allocations of the military budget. During the 1950's half of all budgetary allocations went, as a rule (with the exception of the period of the war in Korea) for the air force's portion, and the second half was divided between the army and naval forces [32]. As was already mentioned, the /63
official American strategy during the period of special reliance on air power was the strategy of "massive retaliation".

The rapidly discovered vulnerability of American territory, as a result of creation by the Soviet Union of strategic means for delivery of nuclear weapons in the form of intercontinental bombers and ICBMs undermined the dominating positions of the air force and its ideological nucleus--the Strategic Air Command and gave the

possibility for the army and naval forces to strengthen their positions both in the manner of material and technical supply, and in the area of doctrinal positions.

The Kennedy-Johnson strategy of "flexible reaction", which moved into replace the strategy of "massive retaliation", retained its reliance on strategic forces, while at the same time the role of the army and navy increased sharply. This was also manifested in particular in the approach of the U.S.A. to the war unleashed by it in Indochina. The command of the navy and army (incidentally speaking, no small amount of effort was applied, emanating from purely egotistical considerations, for discreditation of the strategy of "massive retaliation") learned a very clear lesson from the situation of the 1950's. At the end of the 1950's the navy acquired its own modern strategic weapons system -- the atomic submarine with "Polaris" rockets, and at the end of the 1960's the army also acquired its component of a strategic weapon -- a system of antimissile defense, and the American "Safeguard" ABM system is located under its command (true, reduced to the most modest dimensions as a result of agreements with the U.S.S.R.).

At the present time, each of the three types of armed forces received approximately an equal share of the means of the military budget, although the leading position during the last three years is occupied by the navy in connection with strengthening of the influence of allies of naval strategy in the official management of the U.S.A. However, in the area of allocations for research and development, the air force leads as before, as can be seen from Table 2.

Each of the branches of the armed forces is trying even harder to strengthen its communications with the leading military technology for the purpose of strengthening its position in the U.S.A. military complex.

The American researcher in strategic problems E. Bottom notes that "the standard procedure" of conflicts between the different branches of the armed forces of the U.S.A., which were already coming together during the first years after the war, consists of the following: "According to this procedure, each branch of the armed forces, together with its multitudinous industrial and political allies, invents a foreign strategy, called on to increase the budget allocation released to it. Then each of these groups appears before congress and the nation and asserts its specific strategy and given weapons systems must be realized, or in the opposite case the result would be horrible consequences for American national security. These repeated efforts, directed toward literally territorializing congress and the American people, continue up to the present day, since each branch of the /64

armed forces waves a spectre of an enemy which is prepared or is preparing to conduct his very type of war" [32]. This competition among the three branches of the U.S.A. armed forces, based on a struggle for assuring that the newest achievements of technology are used first in the interests of that branch of the armed forces is one of the powerful factors stimulating the arms race in the U.S.A. /65

In which direction the strategic forces of the U.S.A. will really be developed in the condition of conclusion of Soviet-American agreements on limitation of quantitative and qualitative increases in strategic armaments, depends on whole series of factors. Most important among them are: the relationship of strategic forces between the U.S.A. and the U.S.S.R. and the overall state of the Soviet-American relations, the presence or absence of future agreements in the area of strategic armed systems (both bilateral Soviet-American ones, and more widespread ones, for instance, with participation of all nuclear powers), the overall strategic situation in the world, new revolutionary "breakthroughs" in the area of military technology, the overall condition of the American economy, the valuation of the rates of growth of the nuclear threat of the U.S.A. on the part of China, the realization or nonrealization of projects of military integration of the European "nine" and a number of others. In any case it is doubtless that decisions of the second Nixon administration on questions of perspective military-technical politics will basically foreordain a set of systems in the American arsenal of strategic weapons for the 1980's. Much, however, depends on the actual contents of those agreements on limitation of strategic offensive weapons, which the U.S.S.R. and the U.S.A. agreed to conclude during 1974.

Together with this, it is impossible not to see that the dynamics of the arms race in the U.S.A. during the period after the Second World War was largely not dependent on the foreign environment and was generated, so to speak, inside the fierce competition inside the American military industrial complex itself for the largest share of the "military pie" [34]. The stimulus in this order was the situation in which the American designers frequently create new weapon systems not in response to systems of potential enemies, but in response to the corresponding technical achievements of one or the other branch of American armed forces or types of forces. For an example, the new equipment in the area of strategic defense, moreover, is not even equipment, but only a scientific and technical idea (let us say, a countermissile super long range interceptor or laser ABM) which momentarily engenders responsive reactions in the designers of the attacking strategic systems, which finally leads to the invention of new capabilities for overcoming the ABM, creation of plans for new attacking systems, etc. etc. /66

TABLE 2

Overall Allocations and Expenses
For NIOKR of the Three Branches of Armed Forces
of the U.S.A. (in millions of dollars)

Fiscal Year	Overall Allocations			Expenses for research, development, testing and evaluation		
	Army	Air Force	Navy	Army	Air Force	Navy
1971	22596	23191	21886	1697	2827	2212
1972	22214	23860	24094	1878	2960	2445
1973	22817	24856	25635	2068	3193	2730
1974[1]	22191	25399	27275	2240	3446	2930

[1] Projected

SOURCES: "Statement of Secretary of Defense Melvin R. Laird before the Senate Armed Services Committee on the FY 1973 Defense Budget and FY 1973-1977 Program, Feb. 15,1972", Wash., GPO,1972, p. 189; "Statement of Secreatary of Defense Elliot U. Richardson before the Committee on Appropriations House of Representatives Subcommittee on Department of Defense on FY 1974 Defense Budget and FY 1974-1978 Program, Apr. 3, 1973", Wash., GPO p.118; "Hearings before the Committee on Armed Services U.S. Senate, 92nd Cong. 2nd Sess. on S. 310 8 part 2", Wash. GPO, 1972,p.871; "The Department of Defense Program of Research, Development, Test, and Evaluation. FY 1974. Statement -- by Foster", Apr.12,1974, App. 1, pp 1-9.

Considering these situations, it is hardly possible to agree with the authors who appear with theses which are emotionally attractive but, unfortunately, not supported by life about the existence of some sort of objective "earth threshhold of military power", which would automatically be achieved when the destructive force of the military power of one government or another proves to be theoretically sufficient for total destruction of all potential enemies [35]. Experience of the U.S.A. after the Second World War, as all the historical experience of eternal competition between systems for defense and systems for offense, testifies to the fact that the technical limit of the arms race does not exist. Regardless even of the global and death-dealing character of the modern means of mass destruction, the arms race, which presents its own technical logic, will unavoidably continue further, since the designer's thought will be located at the next means of action, the next means of counteraction and vice versa. Besides this, in the capitalist system the arms race turns out to be stimulating in

itself, and therefore the accumulation of a "sufficient quantity" of nuclear explosives cannot automatically stop the strategic weapons race; it only shifts it into other, technically new areas.

The arms race entails ever broadening utilization for military purposes of the achievements of electronic, calculating and decision-making machines. In the U.S.A. in recent times the conviction of the fact that "in the not-too-distant future the decision of whether or not to condemn the world to destruction will be made by a machine" is relatively widely spread. A whole number of well-known American specialists have arrived at the conclusion that "this extreme of insanity will be achieved by means of the widespread acceptance into the arsenal of warheads with individual guidance of the charges to the targets (MIRV) and an improved system for detection of missiles. When this is done, it will be necessary to make highly complex decisions in extremely brief time segments. /67 Also, it is necessary to program the electronic computer machines in such a way that they automatically launch strategic missilies immediately after radio location stations show that the missiles of the enemy have crossed the line of the horizon" [36].

Many competent American scientists consider, however, that this sytem for automatic launching of ICBMs upon the receipt of a signal from a warning and notification network is completely unacceptable in view of the high probability of technical error. In reviewing alternate variations, the well-known American specialists in the area of strategic weapons systems Herbert York notes that the decision to launch can still be left to the president, but "considering the shortness of the time period, the complexity of the information and enormity of the moment the president himself must be previously programmed in a corresponding manner, so that he can make a similar decision" [37].

In this way, the situation could occur when the decision, once again in the final analysis will be actually made by a technical system and the so-called "sanction of the president" will be in reality only a semblence of a considered decision. Therefore, considers York, "the only possible conclusion is that the arms race itself as a whole, as not simply some parts of it or others, is rapidly and inexorably reducing our national security" [38]. The understanding of all these situations by many specialists in the U.S.A. has forced them during recent times to seek real alternatives to automatic involvement in suicide, which leads to a somewhat more sober approach to the problem of retarding the speed of the strategic arms race by means of corresponding international agreements.

The arms race can be stopped not due to the fact that its "technological logic" proves to be exhausted, since the possibility for technical improvement of weapons systems is limitless, as scientific and technical thought is limitless. As was convincingly asserted in the Soviet-American talks on strategic arms limitation and the agreement concluded at their summation, about which the entire experience of international talks on problems of disarmament speak, of the arms race, can be stopped only as a result of rational political decisions, capable of curbing /68 considerations of purely "technical logic". Herbert York rightfully emphasizes that " the arms race cannot be stopped otherwise than with political actions outside the limits of the military departments" [39]. And it is impossible not to agree with this opinion of a well-known American scientist. Only recognition of the colossal danger for the existence of mankind which is hiding in a further uncontrolled arms race, and not simply a situation of a military and technological dead end (which is up to the present not visible), can stop the worldwide arms race.

With this the achievements of the scientific and technical revolution themselves provide the possibility for successfully overcoming those problems which have for long years been the "stumbling-blocks" in the path of limitation and reduction of armaments, such as, for instance, the question of inspection on site. The technical means created by the scientific and technical revolution allow the problem of monitoring observance of the international agreements in the area of limitation of the arms race, concluded before the present time, was full satisfaction using national tracking systems. As the former head of the American Agency for Control of Weapons and Disarmament, William Foster wrote, "Progress in technology not only lead to the necessity for restraint in the nuclear arms race, but also made this possible" [40].

The United States, regardless of the fact that they are the richest country in the western camp, could not avoid the ruinous consequences of the arms race. The tremendous military expenditures and production of weapons, although they enrich certain groups in the military industrial complex, on the whole undermine the economy of imperialistic government from the inside and cause chronic inflation, systematic currency and financial crises and still further aggravate the social problems, suffiently acute without them. In summation, even the ruling circles of the western camp powers including the U.S.A. have stopped seeing the arms race as an absolute blessing.

The understanding is being increased among the ruling circles of the U.S.A. that a further arms race is fraught with the danger of radical "technological breakthroughs", an increase in

military expenditures, and if it is not limited to a definite /69
degree and "placed under control", then this will inflict damage on the security of the U.S.A. and will make understanding with the Soviet Union more difficult. This is the origin of the appearance in the American ruling circles of the mood and even the striving in the direction of a definite understanding about checking the arms race, development and conclusion of agreements about limitation of this race and the setup for it of its own type of frameworks, which would make this race less dangerous for the U.S.A. itself. Even by themselves some directions of the arms race in the nuclear-space age had taken on an extremely threatening character for the U.S.A., as for all other countries in the world.

All these shifts made possible the development of an agreed-upon constructive approach to limitation of the arms race, for which the Soviet Union and other countries of the socialist collaboration have always spoken out as allies.

The beginning of this process was laid by the conclusion of an agreement in 1963 on prohibition of nuclear weapons test in the atmosphere, in space, and under water.

Further, the U.S.A., after lengthy discussions, moved away from the different variations for creation of united nuclear forces in NATO and moved to development and conclusion of a treaty on stopping the spread of nuclear weapons, which closes off the path for bringing this most threatening weapon within the reach of those governments which do not have it. The ruling classes of the U.S.A. recognize that the danger in effect that deepening and broadening of the scientific and technical revolution in a number of capitalist countries would create the prerequisites for acquisition by many countries of the necessary potential for setting up their own production of nuclear weapons.

Agreement was successfully reached on not placing nuclear and other types of mass destruction weapons in space and on the sea floor, and on the prohibition of development, production and stock piling of reserves of bacteriological (biological) and toxic weapons and on their destruction. The latest agreement, in providing for liquidation of a whole type of mass destruction means, is an essential measure in actual disarmament.

And so the scientific and technical revolution, being a direct result of the development of productive forces, lead to creation of powerful destructive means, whose possibilities exceed by many times the rational political goals which might be set in any war, if it is approached as a continuation of politics by /70
other means, and not simply as a mindless bacchanale of murder and destruction. The means have proved to be more grandiose,

as Clauswitz said, than the political goals which must be realized by using them.

This new interrelationship between the means and their goal was not immediately recognized by the politicians of western countries, in particular, the leaders of the U.S.A.

However, under the influence of the overall change in the power relationships in the world (and one of the factors causing it was the rapid scientific and technical, including military-technical progress in the Soviet Union) and other new realities of the contemporary international situation the process of adaptation of the foreign policy course of the U.S.A. to realities and moving away from a number of dogmas and conceptions of the "cold war" period moved rather rapidly.

By the beginning of the 1970's many well-known representatives of the ruling circles of the U.S.A. acknowledged that in modern conditions unchecked growth in military strength becomes insane. This was a radical turnaround in the minds about which H. Kissinger wrote: "Only something like 25 years ago it was considered absolutely improbable that a country could have too much force and not be in political condition to effectively use it; then, each rise in force was, at least theoretically, politically effective" [41]. Kissinger emphasized further that "the paradox of modern military force consists of the fact that the colossal increase in power has disrupted its interconnection with politics. The major nuclear powers are capable of laying waste to each other's territory. But it is extremely difficult for them to convert this capability into policy, with the exception of one sphere--the capability of warding off direct threats to their existence" [42]. And finally: "Force no longer automatically gives rise to influence" [43]. A large group of American researchers (H. Kissinger, G. Scoville, A. Yarmolinsky, D. Gavin and others) spoke out with substantiation, and the ruling circles of the U.S.A. spoke out in acknowledgement of the advisability of such a foreign policy course, which would not contradict the principles of peaceful coexistence between the two systems. Factors which were promoted by the scientific and technical revolution played an essential role in this turnaround.

It should be noted that this process of adaptation by the U.S.A. to foreign policy realities in the world is still not finished by far. Up to the present time there are still people in the U.S.A. who rave about the "absolute military superiority" of the U.S.A. through the use of the latest achievements of the scientific and technical revolution and pressure from a "position of power" on the countries of socialism. There are also still in /71

the U.S.A. apologists of the theory of "economic exhaustion" of the U.S.S.R. by means of further shifting of the spiral of the strategic arms race, each coil of which proves to be, as experience shows, on an order higher than the preceding one.

It is impossible not to consider during this the force of the positions of the military industrial complex of the U.S.A.--who have been building up a ten year union of the most powerful monopolies with the military in the government apparatus. The representatives of these forces in the U.S.A. seek and frequently find roundabout circumventing ways so that without violating the letter of the agreements concluded with the U.S.S.R. on limitation of strategic arms, they received significant budgetary means for "modernization" of weapons. In this way, strategic construction in the U.S.A. is moving out of primarily quantitative increases in strategic systems into the area of their qualitative improvement.

The concept of "trumps for bargaining", whose allies called for acceleration of qualitative improvement of weapons, since this would somehow "strengthen" the positions of the U.S.A in further discussions with the U.S.S.R. on limitation of strategic arms, became a new unique form of struggle against arms race limitation in the beginning of the 1970's.

One of the preachers of this position, director of the Institute of Problems of Communism of Columbia University, Zbignew Brzezinski wrote: "The true question of the 1970's consists not of what will happen if war is started (we all know the answer to that), but of what can occur before the beginning of a battle or, to speak more precisely, before the beginning of a battle which will not begin. The formula "we have enough" (military force--author) is usually interpreted in terms of what is needed for battle. However, a more important political fact is forgotten: we can need more for the bargaining done for combat" [44]. Therefore, also in the condition an attempt is made to find additional arguments for an increase in force, continuation of the arms /72
race and renewal and maintenance of the situation of international tension, suspicion and lack of trust.

It should be emphasized that many political activists and scientists of the U.S.A. spoke out against the theory of "trumps for bargaining". Thus, M. Shulman wrote: "The barrier in the path to softening and reduction of the competition in the area of strategic arms is the argument, or perhaps it would be more precise to say the difference of opinion that further strengthening of our military position will improve our position in bargaining, increasing for our rival the stimulas to come to an agreement.

However, the new dymanism in military competition is in opposition to this result" [45].

Nevertheless, this theory has been widely embraced in the military-political and scientific circles of the U.S.A. and disrupts further normalization of the international situation.

Similar efforts to turn back the course of events and retard movement in this direction of relieving tension are dictated not only by the interests of the weapons manufacturers. They are also rooted in the traditional consciousness of the ruling elite, some representatives of which still do not want to and cannot part from the illusion of the "technological superiority" of the U.S.A. And indeed this very delusion lay at the basis of many major calculations in American strategic planning during the post-war period.

So the struggle is not finished and a bitter social discussion continues around the questions concerning perspectives of construction of military force in the U.S.A., limitation of arms and disarmaments. However, a comforting fact consists of the undoubted strengthening of the positions of scientists, political activists and broad layers of society in general, speaking out against the arms race, against militarism and for world coexistence and constructive business collaboration with the countries of socialism. A real assertion of the fact that these mooods and convictions are being strengthened in the U.S.A. can be seen in the conclusion of the Soviet-American high level talks, convened in Moscow in 1972 and in the U.S.A. in 1973, the documents developed and accepted as a result of these talks, and primarily the historic Agreement on Prevention of Nuclear War, signed by CC CPSU General Secretary, L. I. Brezhnev and president of the U.S.A. R. Nixon in June of 1973.

CHAPTER III

THE FOREIGN ECONOMIC POLICY OF THE U.S.A. IN THE CAPITALIST WORLD

The development of the scientific and technical revolution /73
during the postwar period has a great effect on the foreign economic policy and the forms and methods of foreign economics expansion of the U.S.A. This effect in the modern era of the overall crisis of capitalism is tempered by the action of a number of international internal factors, the most essential of whch are the increase in unevenness of development and the changing distribution of power and aggravation of the contradictions in the capitalistic worlds; the growing influence of the socialist system on the course of world development; and the collapse of the colonial system of capitalism and activation of the national liberation movement.

All this increases the value for the policy of the U.S.A. in using the fruits of scientific and technical progress, turning it into one of the most important factors in economic development, hoping to raise the capacity to compete for the market and spheres of capital investment and sources of raw material, and for political and economic influence in the world.

These factors bring about the content and evolution of American foreign economic policy and the new measures in the struggle of the U.S.A. for the market and spheres of influence, as well as new directions in the development of the interimperialistic contradictions. The advantage of the U.S.A. over other capitalist countries in a scientific and technical relationship has at its basis such internal factors as the presence of a capacious internal market, capable of absorbing large quantities of technological new /74
goods, a high level of concentration of capital and production, the presence of large sums of excess capital, a high degree of development of state-monopolistic capitalism and so forth. The capacious American market, in combination with the presence of large sums of capital were, already in the early stages of the economic development of the U.S.A., stimuli toward utilization of the newest technology for large scale production. Precisely the comparatively low cost of production, caused by the advantages of introduction of the newest technology and large scales of production, allowed the United States to successfully perform on the world markets with many types of mass produced goods, which in other countries are frequently produced manually or at small enterprises. The scales of the American production and market themselves are an important factor in the scientific and technical revolution, reinforcing the competitive capacity of the U.S.A. on the world markets.

The large dimensions of the production and market brought about large scales of American companies, which in dimensions of production, capital and profits received exceed by several times the majority of their largest competitors.

The high norm and mass of profits allow American companies to finance scientific and research work in large scales.

The rapid development of the state-monopolistic capitalism of the U.S.A. promoted concentration in the hands of the government of large financial resources, part of which are used for widespread financing of scientific and research work. The results of this work are transmitted to the largest American firms which essentially increase their possibilities for utilization of scientific and technical potential in the struggle for foreign markets and strengthen their competitive position. The formulation of competitive positions of the U.S.A. also goes on the influence of the significant achievements of the American business world in the area of the newest methods of control. These methods not only promote an increase in the capitalistic effectiveness of production, but also stimulate introduction and production of the newest scientific and technical developments. Apparently, all the factors noted above have had and continue to have an essential influence on the formation of the scientific and technical potential of the U.S.A. and on its position in the world capitalist economy. /75

American companies, as a rule, also have an advantage in that by comparison with their main competitors, they have better set up cooperation, specialization of production and subcontracting of small firms by the large ones. A large number of firms can be counted in the U.S.A. which are occupied with the all-round study (using mathematical methods and recommendations of psychologists and sociologists) of the market and the evolution of demand,which increases the effectiveness of introducing new goods into the market.

In this struggle the newest scientific and technical achievements always secure an advantage for their possessors on world markets and in the sphere of foreign economic expansion. During the years of the rapid development of the scientific and technical revolution this factor of a competitive struggle has an especially great meaning. The activity in creation of new products and searches for new production processes is becoming an independent sphere of activity of departments in the largest firms of the U.S.A. and companies have even been specially organized for it. In the largest monopolies of the U.S.A. the task of maintaining superiority in the area of technology is planned for many years ahead and is its own type of element for strategic expansion in foreign markets.

Now the high level of development of the scientific and technical revolution in the U.S.A. determines to a significant degree the content of all its foreign economic policies and the general structure of its foreign economic communications, to include the structure of American foreign trade and the competitive position of monopolistic capital of the U.S.A. on world markets.

The Role of the Scientific and Technical Potential of the U.S.A.

The U.S.A. possesses scientific and technical superiority over their capitalist rivals in a whole number of spheres. It is manisfested in a high level of development of science and engineering in the U.S.A., a higher productivity of labor and better organization of production control. The most important indices of this superiority are the scope of scientific research /76
and development, the quantity and qualifications of specialists, the state of the material and technical art and the rapidity for introducing scientific and technical achievements into practice. The determining index of the scientific and technical superiority of the U.S.A. is the high level of development of the newest branches, having a decisive meaning for scientific and technical progress.

For all these indices, their qualitative side has the primary meaning in the conditions of scientific and technical revolution. At the same time almost all of them also have quantitative characteristics, which can be measured to a certain degree of accuracy.

Let us compare the quantitative characteristics of the U.S.A. and another center of the capitalist world -- Western Europe. It is known that already from the middle of the 1930's the noticeable change occurred in the relationship between expenditures of Western Europe and the U.S.A. for scientific research and development. While before this period Europe generally spent on these goals more resources than the U.S.A., the U.S.A. later moved out ahead. During the years of the Second World War and in the postwar period the U.S.A. greatly surpassed Western Europe in dimensions of allocations for science. Thus, while in the 1930's the expenses on scientific research in Western Europe and the U.S.A. were approximately identical, by the end of the 1960's the overall expenditures of the U.S.A. exceeded Western European ones by 3-3.5 times.

During recent years allocations for scientific research has risen in Western Europe at greater rates of speed than the U.S.A., where the increase in these expenditures has slowed down. Thus,

for instance, by the end of the 1960's expenditures for scientific research and development in England reached 2.5-3 % of its gross national product, which is to say approximately the same relative part as in the U.S.A. [1]

Nevertheless, the lag of Western Europe behind the U.S.A. in the area of financing scientific research continues to be felt very sharply. It should be emphasized in connection with this that comparison of these expenditures among countries according to their part of the gross national product or in a calculation on the per capita population does not give a true impression of them. These comparisons do not consider the "cumulative effect" of allocations for science, which is connected with the absolute sizes of these expenditures. Thus, the same 3% of the expenditures for science in the U.S.A. and England indicates a difference of more than 10 times in the absolute amounts of these expenditures. /77

The U.S.A. also leads other capitalist countries significantly according to another important index of scientific and technical potential -- the number of scientific cadres as well as according to the overall saturation of the economy with highly qualified specialists with various profiles of training. Thus, for instance, in the calculation on the per capita population the U.S.A. has 2-3 times more scientific workers and engineers occupied with research and development then the countries of Western Europe or Japan, and in a number of students, (also in a calculation per unit of the population) the U.S.A. leads England, the FRG and Italy by 5 times, and France and Japan by 2.5 times.

In examining the lag of Western Europe behind the U.S.A. in the area of scientific research, it is necessary to note that it becomes even more apparent according to the measure of transfer from fundamental and applied research to development of the scopes and results of research and development depend to a decisive degree on the scale of the resources granted for their development, this relates in an even greater measure to "dissemination of the innovations", which is to say mastery of the new equipment and technology. According to some evaluations, these expenses exceed expenditures for research and development by approximately 9 times [2]. The lag of Europe is the greatest in this particular area.

It is known, for instance, that in the first postwar years, England was practically abreast with the U.S.A. in developments connected with production of electronic computer equipments. Already by the beginning of the 1960's, however, America moved around England significantly and by the beginning of the 1970's, it actually monopolized the world capitalistic market of electronic computer equipment.

Differences in material and personnel expenditures on the development of science, in the effectiveness of their utilization and bringing up to practical application leads to a situation in which a significant breach also exists between the U.S.A. and other capitalist countries in the level of development of equipment. Quantitative changes in the differences between the countries are extremely complex, although the data presented in Table 3 allow some impression to be obtained on the size of this gap.

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Table 3 Comparison of Some Indices of the Levels of Economic and Technical Development of the U.S.A. and Western Europe in 1968* (in a calculation per 1 million people, in %)

Country	Production				Power of Atomic Power station	No. of electronic computer	No. of Machine tools w/program control
	Steel	Aluminum	Plastic	Electric Power			
U.S.A.	100.0	100.0	100.0	100.0	100.0	100.0	100.0
FRG	119.6	45.9	168.5	49.2	40.6	33.7	23.7
England	77.5	22.4	68.6	56.1	519.1	28.0	37.9
France	68.8	47.3	53.4	32.9	103.7	27.2	17.7
Italy	54.2	14.7	79.8	27.0	84.8	16.9	3.3
Holland	49.2	---	180.1	39.0	---	18.6	---
Austria	79.5	86.0	43.3	48.8	---	19.5	---

* Computed according to data of: "Monthly Bulletin of Statistics", Dec. 1969, pp.1-4, 72, 78-80, 99-101; "Fortune", Aug.15, 1969, p 88; Applied to BIKI, [Bull. of For. Coml. Info.], No. 2, 1970, "Statistical Yearbook", p. 360.

As is evident, in the production of "traditional" products--steel, aluminum, plastic and electric power -- the U.S.A. moves ahead of almost all the countries of Western Europe, although this lead in rare cases amounts to over 100% of the European level. In production of plastic (with consideration for size of the population) two countries -- the FRG and Holland -- lead the U.S.A., and in the production of steel, one country -- the FRG leads the U.S.A.

The matter with areas which are more closely tied to the scientific and technical revolution is different. It is known that electronic computer machines are opening a qualitative new stage both in the sphere of material production, allowing the transfer to complex automation to be accomplished, but also in the sphere of calculation, control, monitoring and other areas of activity, where technical progress was previously almost absent. It is not vain that the computer is considered the symbol of the modern scientific and technical revolution, as was the steam engine during the industrial revolution of the 18th and 19th centuries.

Concerning machine tools with programmed control (SPU), their production and use is the most important and most promising direction in the development of machine building. The automation, accomplished with their use, of small-series production in the machine building and metal treatment industries opens wide perspectives for a rise in the productivity of labor. While the level of the U.S.A. in traditional branches is higher than in the major countries of Western Europe, usually by 1.5-2 times, according to such indices as utilization of computers and programmed machine tools, it is 3-4 times. Consequently, the "technological gap" is manifested primarily in branches whose development is directly connected with the scientific and technical revolution. /79

From this point of view the conclusions contained in the report of a group of well-known experts of the organization of economic collaboration and development (OESR) "gaps in technology" represents a great deal of interest. In their opinion, the advantages of the U.S.A. in innovations and discoveries are especially noticeable in those branches of industry whose development depends directly on the progress of science, which is to say in those which characterize the modern scientific and technical revolution. As concerned Western Europe, it could make a number of important discoveries and innovations in "traditional" branches of industry, such as, for instance, the steel smelting one. It also lagged behind the U.S.A. significantly less in those spheres of production where many important innovations were made in the 1920's and 1930's.

According to evaluation of the report, in the production of iron, steel, aluminum, nickel, and copper, lies differences in technical levels do not generally exist. However, the U.S.A. occupies the leading position in production of such new and promising metals as tantalum and titanium.

In the production of plastic, there is no significant gap between the U.S.A. and Western Europe. The U.S.A., however, outstrip the Western European countries in the production of special

purpose plastic, which appeared as a result of accomplishment of military and space programs and later dissemination into other spheres.

Although a large gap in the area of machine tool construction does not exist, the U.S.A. began earlier and widely uses machines with programmed control. Now this gap has begun to be reduced.

Experts of the OESR consider that the large lag of capitalistic Europe behind the United States in the area of production of electronic computer machines occurred during the course of the 1960's and as a result the U.S.A. occupied "extremely strong positions --- in the world markets" [3]. The American companies occupy a similar position in the production of semiconductors. They significantly outstripped Europe in the output of electronic measuring and control instruments. /80

Therefore, both the statistical data and evaluations of experts assert the presence of a significant "technological gap" between the U.S.A. and Western Europe, whose depth, true, is extremely uneven in various branches of industry and technology, but are especially great in the newest areas of technical progress in the branches of industry which are the most closely tied to it (the electronic, electrotechnical, aviation and automotive branches, etc.).

Lagging behind the U.S.A. with respect to level of technical progress, Western Europe, however, and this is very important to have in mind, is moving forward with respect to rates of technical progress. Experts in the OESR produced in measurement of the rates and the levels of technical progress on the basis of two indices: the state and rates of utilization of new production processes and products and the growth in the rise in effectiveness of the expenditures for labor and capital. Analysis of these indices testifies that while the U.S.A. has the highest level of technical progress, many European countries have higher rates of its growth over the course of the last ten years.

This conclusion is supported by comparing the rise in number of electronic computer machines and programmed machine tools and the increase in production of all types of plastics and capability of atomic power stations in the U.S.A. and the countries of Western Europe during the 1960's.

As the data on hand show, the rates of technical progress were higher in Western Europe. Thus, the rise in the number of computers in Western European countries went 2.2 times faster than in the U.S.A., and amounted to about 22,000 by comparison with 54,000 in the U.S.A. The number of programmed machine tools

also increased in all the countries of Western Europe from 1960 through 1968 at a much faster pace than in the U.S.A.

However, the superiority of Europe in the rates of technical progress have not up to the present time lead to liquidation of the gap, which as before remains extremely essential. Up to the present time, they are 2.5 - 3 times more computers in the U.S.A. than in all the countries of Western Europe taken together. The gap in the number of programmed machine tools is even greater -- 3.5 times.

One of the factors promoting deepening of the technological /81
gap between the U.S.A. and Western Europe is the "brain drain". According to the calculations of the National Science Foundation of the U.S.A., in the 1950's the immigration alone into the U.S.A. of 53,000 qualified engineers, scientists and doctors allowed the U.S.A. to "save" at the expense of the other governments who trained these specialists, almost 2 billion dollars. During the period from 1960 through 1970 the number of similar immigrants exceeded 86,000 and the "savings" amounted to a proportionately larger sum -- over 3.5 billion dollars, especially if one considers the rise in costs for training of specialists. A significant part of the immigrant originated from Western Europe.

All the moments listed above have an extremely great influence on the foreign economic policy of the U.S.A. The most important consequence of American leadership of the capitalist world in science and technology is the utilization of that advantage for export of capital and strengthening of the economic positions of the American monopolies directly in other capitalistic countries.

Another feature of the economic, scientific and technical expansion of the U.S.A. consists of the fact that the dominance of American capital is especially strong in highly technical-science- consuming industrial branches of the developed capitalistic countries [4]. Two important earmarks, inherent in those branches of industry which are distinguished by the high level of expenditures on scientific research and development, make them especially attractive for the American monopolies: firstly, as a rule, a higher norm of profit by comparison with other branches of industry and, secondly, the rapid growth rates.

The aforementioned acceleration in the rates of scientific and technical developments in Western Europe and Japan with a gradual reduction of the difference in its level between them and the U.S.A. is occurring not only against a background of aggravation of the inequalities of capitalistic development, but is also experiencing the effect of other factors, in particular the

changes in the economic conjucture and in government scientific and technical politics.

From this point of view both changes with respect to the scientific and technical potentials of the major capitalistic countries which were outlined in the second half of the 1960's are indicatavive. In conditions of a sharp rise in inflation, caused primarily by the war in Vietnam, the government of President Johnson in essence went to a freeze on government spending for the development of science. After their comparitively rapid growth from the beginning of the 1950's to the middle of the 1960's federal spending for science even in ongoing prices stopped growing. Considering the inflationary depreciation of the dollar and the cost of scientific and research work in the U.S.A. and actual reduction of real expenditures for science occurred. The ruling circles of the U.S.A. were forced to pay for the aggression in Vietnam not only by a drop in prestige on the international arena and inside the country, but also by a reduction in the growth rate of its scientific and technical potential. /82

During recent years in the U.S.A. voices have begun to be heard increasing louder, warning that the growth rates of labor productivity in the United States are beginning to lag behind Western Europe and Japan and that the scientific and technical leadership of the U.S.A. in the capitalist world is no longer so perceptible. Naturally, it is necessary to consider that the multitudinous announcements made in the U.S.A. about the "threat of losing" the scientific and technical leadership of the U.S.A. frequently exaggerates the rate at which the "technological gap" is being narrowed. According to caluclations, regardless of the narrowing of the gap during the last 25 years according to such an important index as the productivity of labor, between the U.S.A. and the other major capitalist countries, with the exception of England, in 1970 this index amounted to: (as a percent of the U.S.A.'s level): FRG -- 58, France -- 72, Japan -- 43 and England -- 50 [5].

The increase in competition on world capitalist markets and weakening of the competitive capacity of American goods first a... government of the U.S.A. to take active additional measures to strengthen the American scientific and technical potential.

One of the most important new methods in the government scientific and technical policies of the U.S.A., which was revealed in 1971, is the striving of the Nixon government to force scientific research and development for the purpose of using their results to increase the rise in labor productivity and boost the competitive capacity of American goods on foreign markets.

Among the measures taken in this direction, it is possible to cite the increase in the sums of government loans to enterprises which successfully introduced new equipment and tech- /83
nologies; the granting of government prizes for important scientific and technical achievements and; proposals directed at liberization of antitrus legislation and having the purpose of allowing the firms to combine their efforts for realization of major scientific and technical programs. Special allocations were given to the National Science Foundation and the Department of Commerce for conducting experimental projects for the purpose of finding the most effective ways the federal government can cooperate with firms, universities and local organs of power to accelerate scientific and technical progress.

Along with the "technological gap" between the U.S.A. and Western Europe, another, much deeper economic, scientific and technical gap exists between the U.S.A. and other developed capitalist countries on one hand, and the countries of the "third world" on the other, a gap which is a direct result of the disgraceful colonial system of imperialism and the continuing neocolonialist policies supported by them. All the developing countries taken together spend at the present time for purposes of scientific research and development 30 times less than does the United States alone; according to number of people with scientific degrees, taken in a calculation per unit of population, the countries of Africa lag behind the U.S.A. by approximately 200 times. The United States and other imperialist powers, forced to render some economic, scientific and technical assistance to the developing countries through the UN and other channels, simultaneously are conducting a broad system of measures directed at perpetuating this gap. Thus, for instance, of the 13,300 scientific workers, engineers and doctors who imigrated into the United States during 1970, 8,800 persons, or 66%, belong to immigrants from the developing nations [6]. The conclusion contained in one of the documents of the UN that "the "brain drain' occurring at the present time in many respects is a harmful phenomenon. It represents an uneven and one-sided movement which is wholly unfavorable for the developing nations" [7].

On the whole in the conditions of the modern scientific and technical revolution the law of the uneven capitalist development strengthens its effect: "neither the process of integration, or /84
the class interests of the imperialists in combining efforts for the struggle against world socialism ", it was noted in an accounting report of the CC CPSU to the 23rd CPSU Congress, "eliminated the contradictions between imperialist governments. By the beginning of the 1970's the basic centers of imperialistic rivalry were distinctly defined: these were the U.S.A. -- Western Europe (primarily the six "common market" countries) -- Japan. The economic and political competition struggle between them is developing

increasingly sharply"[8].

Qualitative changes, introduced by the scientific and technical revolution into the development of productive forces and economic development as a whole, will lead to a sharp aggravation of the interimperialistic struggle in the economic and polital areas.

Foreign Investments -- The Basic Form of Economic Expansion of the U.S.A. in the Conditions of the Scientific and Technical Revolution

The rise in the role of foreign capital investments as a means of foreign economic expansion of the monopolies of the U.S.A. is connected with the overall increase in the accumulation of capital in the capitalist world and activation of the process of transfusion of capital between the industrially developed countries. The scientific and technical revolution has a great effect in this process. In the conditions of the scientific and technical revolution in relations between industrially developed countries exchange along the line of productive factors (transmission of capital and newest technology) becomes a basic form of economic relations. The exchange of capital and technologies.

TABLE 4 FOREIGN INVESTMENTS OF THE U.S.A. * (in billions of dollars)

/86

	1930	1939	1946	1950	1955	1957	1960	1965	1968	1969	1970	1971
Total	17.2	11.4	18.7	31.5	44.9	54.2	66.2	103.2	131.1	140.9	150.0	164.5
Private	17.2	11.4	13.5	19.0	29.0	36.8	49.4	79.8	102.5	110.2	117.8	130.3
Long-term	15.2	10.8	12.3	17.5	26.7	33.6	44.5	71.4	89.5	96.0	105.0	115.6
Direct [1]	8.0	7.0	7.2	11.8	19.3	25.4	31.9	49.5	65.0	70.8	78.2	86.0
Portfolio [2]	7.2	3.8	5.1	5.7	7.4	8.4	12.6	21.9	24.5	25.2	26.8	29.6
Short-term	2.0	0.6	1.3	1.5	2.4	3.2	4.8	8.4	13.0	14.2	12.8	14.7
Government	—	**	5.2	12.5	15.9	17.4	16.9	23.4	28.5	30.7	32.2	84.2
Including:												
Long-Term	—	**	5.0	10.8	15.2	15.6	14.0	20.3	25.9	28.2	29.7	31.8

* Here and in other tables discrepancies in the totals are due to rounding off.

** Less than 0.05 billion dollars

TABLE 4 (continued)

[1] "Direct investments" according to official statistics of the U.S.A., are investments in an amount of more than 10% of the assets of the enterprise, securing financial and administrative control.

[2] "Portfolio investments" are investments in an amount of less than 10% of the assets of the enterprise.

SOURCES: "U. S. Department of Commerce. Balance of Payments", Wash., 1963; "Survey of Current Business", Aug. 1959, Oct.1970, 1971, Oct. 1972

The amount of capital export from the United States, which is the major financial center and major center of concentration of the newest technology, exceeds the volume of capital export from all other capitalist governments taken together. The data in Table 4 testifies to the rapid growth of foreign investments of the U.S.A.

At the end of 1971, the overall sum of the overseas investments of the U.S.A. reached tremendous proportions -- almost 165 billion dollars. This does not include government subsidies presented to foreign countries through programs of "aid", whose sum over the period from fiscal year 1945/46 through fiscal year 1971/72 amounted to about 120 billion dollars. /85

The annual scope of export of personal capital increased from 0.4 billion dollars in 1946 to 6.5 billion dollars in 1964. In 1965 limitations were introduced on export of capital from the U.S.A., and it was reduced (in billions of dollars) to 3.7 in 1965, 4.2 in 1966, and an average of 5.5 in 1967 - 1969. In 1971, it again increased up to 9.6 billion dollars [9].

Even in conditions of the existence of controls, however, the export of capital in 1971 exceeded the average level of the first postwar years (1946-1950) by twelve times, and even with consideration for devaluation of the dollar, significantly exceeded the highest amounts of export of personal capital before the Second World War. The annual volume of overseas investments by American monopolies significantly exceeds the annual volume of export of capital, since the overall volume of new investments

include, besides the capital transmitted from the U.S.A., reinvestments, investments from mortgage funds, load capital and so forth. In 1971, the overall sum of new investments in affiliated and subsidiary companies amounted to 14 billion dollars [10].

Investments of capital in foreign enterprises have an extremely significant specific weight in the overall sum of new capital investments made by American companies. The data in Table 5 testifies to this.

TABLE 5 PORTION OF OVERSEAS CAPITAL INVESTMENTS IN THE OVERALL TOTAL OF INVESTMENTS OF INDUSTRIAL COMPANIES OF THE U.S.A. IN 1960 - 1968 (in millions of dollars)

/87

Branch of Industry	1960				1965				1968			
	Total	Inside the U.S.A.	Overseas	Share of overseas Investments (%)	Total	Inside the U.S.A.	Overseas	Share of overseas Investments (%)	Total	Inside the U.S.A.	Overseas	Share of overseas Investments (%)
Mining & Oil	5 523	3 630	1 893	34	8 074	5 140	2 934	36	11 116	6 420	4 696	42
Machining	8 785	7 600	1 185	13	15 624	12 070	3 554	23	18 853	13 890	4 963	26
including:												
Prim.mach.of ferrous metal	1 143	1 010	133	12	2 016	1 660	356	18	...	...	...	...
Elec.equip.	784	680	104	13	1 018	800	218	21	...	...	...	...
Mach.bldg.	1 234	1 100	132	11	2 584	1 990	594	23	3 944	2 740	1 204	30
Trans.Mach.-bldg.	1 646	1 310	336	20	3 457	2 500	957	28	3 417	2 600	817	27
Paper	828	750	78	9	1 343	1 130	213	16				
Chemical	1 837	1 600	237	13	3 340	2 470	870	26	4 200	2 780	1 420	30

SOURCE: "Survey of Current Business", Sept. 1962, p.21; Sept.1965, p. 30, Sept. 1968, pp.14, 18, 19.

The growth of industrial production, the structural changes in the economics of the industrially developed countries which took place under the influence of the scientific and technical revolution, markets which are more capacious than in the developing countries and integration processes, all this in the conditions of collapse of the colonial system of imperialism brought about an intensification of the processes of the movement of capital between developed countries. At the present time about one third of the private capital exported from the capitalist countries is directed to the developing countries, and two thirds of it goes from industrially developed countries into industrially developed countries, from a capital-export ones to the capital-importing ones.

The formation of the "common market" in Western Europe played a notable role in this process. The scientific and technical revolution and capitalistic integration whipped up the export of capital from countries with highly developed industry, to the greatest degree from the U.S.A., to the industrially developed countries and amplified the process which had begun even before integration.

In the 1960's of the total sum of capital exported from the U.S.A. in the form of direct investments, three-fourths were directed into developed countries and one fourth into developing countries. In 1967, the portion to developed countries amounted to over 70% of the new direct capital investments from the U.S.A. Even in 1968, when under the effect of limitation of capital export into the EEC countries in the form of direct investments decreased by half and the specific weight of new direct capital investments into industrially developed countries was reduced, the share to the developed countries reached 60%. /88

The export of capital from the U.S.A. into Western Europe in the form of direct investments increased from 0.2 billion dollars in 1958 to 2.0 billion dollars in 1970. The distribution of private long-term investments of the U.S.A. is shown in Table 6.

During the last decade the countries of Western Europe moved into first place as the sphere of application of new American direct investments. This place was previously occupied by Canada. Even according to the total amount of direct investments Western Europe in 1967 actually compared with Canada, and then later surpassed it. The number of enterprises fully controlled by American capital in Western Europe increased from 597 in 1961 to 5216 in 1970.

TABLE 6 PRIVATE LONG-TERM INVESTMENTS OF THE U.S.A., DISTRIBUTED ACCORDING TO REGIONS (in billions of dollars)

/89

	1897	1914	1929	1935	1943	1950	1957	1960	1965	1969	1970	1971
Total	0.7	3.5	15.4	12.4	—	17.5	33.6	45.4	70.9	96.3	105.0	115.6
Canada	0.2	0.9	3.7	3.7	—	7.0	12.6	16.6	24.7	32.7	35.2	37.3
Latin America	0.3	1.6	5.4	4.5	—	5.1	—	9.9	11.8	17.0	18.2	19.5
Western Europe	0.2	0.7	4.6	3.0	—	3.1	5.8	9.9	19.2	26.8	29.6	33.2
Other*	***	0.3	1.7	1.6	—	2.3	—	9.0	15.2	19.8	22.0	25.6
Direct part of above												
Total	0.6	2.7	7.6	7.2	7.9	11.8	25.3	32.8	49.3	71.0	78.2	86.0
Canada	0.2	0.6	1.7	1.7	2.1	3.6	8.6	11.2	15.2	21.1	22.8	24.0
Latin America	0.3	1.3	3.7	3.3	2.7	4.4	7.4	8.4	9.4	13.8	14.8	15.8
Western Europe	0.1	0.6	1.3	1.4	2.0	1.7	4.1	6.7	14.0	21.7	24.5	27.6
Other	***	0.2	0.9	0.8	1.1	2.0	5.2	6.5	10.7	14.4	16.1	18.6

* Including investments of private capital in valuable paper of intergovernmental organizations and sums spent on acquisition of vessels registered abroad.

** Including sums spent on acquisition of vessels registered abroad.

*** Less than 0.05 billion dollars.

SOURCES: "Direct Private Foreign Investments of the United States", Wash., 1953, p. 48; "U.S. Department of Commerce. Balance of Payments. Statistical Supplement", Wash. 1958; "Survey of Current Business", Sept. 1960, Aug. 1968, Oct., 1971, Oct., Nov. 1972.

Besides this, in a number of western European enterprises, large portfolio investments belong to American capital. Nearly 7000 western European enterprises have licensing agreements with companies in the U.S.A., which also gives the latter definite possibilities for exercising influence in the policies of these enterprises.

In the first, preparation stage of creation of the "common market" American monopolies considered that the process of "integration" would encompass all countries of Western Europe, and put their basis on increasing their capital investments in England, figuring on using them as the major base for their expansion into integrated western Europe. After creation of the "common market" beginning in 1968 the major objective of the expansion of American capital in western Europe became the "six" countries. Since that time the growth rates of American investments in the "common market" countries have exceeded the rates of increase in investments in England, which is traditionally the basic staging area for the activity of American affiliates and subsidiary companies in western Europe.

At the beginning of the 1970's the joint direct investments /90
of the U.S.A. in the six "common market" countries exceeded the capital investments of the U.S.A. monopolies in England. In 1970 the direct capital investments of the U.S.A. in the "common market" countries amounted to 11.7 billion dollars, and in England 8.0 billion dollars. The monopolies of the U.S.A. created a large staging area for the development of their expansion in western Europe in the "common market". On the eve of formation of the "common market" in 1959, 1.2 billion dollars belonged to the countries of the "six" and 1.4 billion dollars belonged to England[11]. The acceptance of England into the "common market" promoted consolidation of American investments in western Europe and provided additional possibilities for expansion of the monopolistic capital of the U.S.A.

The American monopolies have directed much attention toward the Federal Republic of Germany, which they see as an important economic and military force in the "common market". Nearly 40% of the direct American investments is concentrated in the "common market" countries belong to the FRG at the beginning of the 1970's. American investments in this country increased over the years 1956-1970 from 373 million dollars up to 4.6 million dollars, which is to say by 12.4 times with an overall gross of American investments in the "common market" countries over this period by 10 times -- from 1.2 billion dollars up to 11.7 billion dollars. Integration in western Europe, making access of goods there, exported from the U.S.A. difficult, accelerated introduction of the U.S.A. monopolies into the economics of the integrated countries by means of export of capital. The American monopolies used export of capital to overcome the tariff protection, strengthened in connection with creation of a closed regional grouping of the EEC, and strengthening their positions against the growing competition of the western European monopolies. As a result, the U.S.A. has essentially broadened its network of enterprises in western Europe.

An important feature of the export of American capital in the conditions of the scientific and technical revolution is the countries of Latin America, which were formerly a long time important region for expansion of the U.S.A., and the relatively low gross rates of investments by the U.S.A. in other developing countries. Apparently, the major deterring factor was the increase in the national liberation movement in these countries. Together with this, the stimulating effect with the scientific /91
and technical revolution had on the development of international economic intercourse, touched on the developing countries to a lesser degree. The absence of the necessary technical and economic infrastructure in the majority of the developing countries and their low solvency makes, from the point of view of capitalistic partnership, development of new branches of industry in the "third world" unprofitable. The striving of the monopolistic capital of the U.S.A. to keep the developing countries in the sphere of imperialistic exploitation in a position of an agrarian and raw material appendage of the capitalist governments also plays an important role in this approach.

Latin America, which was themajor objective for application of American capital during the Second World War, yielded this place in 1946-1955 to Canada, and also since 1962 to western Europe. An important factor deterring the rise in American investments in Latin America was the nationalization of the enterprises in Cuba and in Chile had been controlled by U.S.A. monopolies and the rise of Antiamericanism and the national liberation movement in other countries of Latin America.

The development of the national liberation movement also deterred an increase in direct investments of the U.S.A. in the developing countries of Asia and Africa. The greatest increase in American investments occurred either in the oil-producing nations for recovery of oil for export to the developed countries which have increased their demand for this item in the conditions of the scientific and technical revolution, or to the more economically developed of the developoing nations, where the necessary prerequisite for a profitable placement of capital were present. At the present time, calls are going out again in the U.S.A. to increase the export of American private capital to the developing countries. Simultaneously, as its own type of bait for the developing countries, called on to depict the U.S.A. as the champion of their scientific and technical progress, proposals are sent forth and plans are accomplished for some increase in the scientific and technical "aid" of the U.S.A.to the developing countries.

The shift in the center of gravity of the economic expansion to the countries of western Europe determined a change in the branch structure of the direct investments of the U.S.A. as a whole (see Table 7).

During the last 15 years the growth of direct investments of the U.S.A. abroad in the manufacturing industry is outstripping the rise of investments in the mining industry. It is characteristic that up to 1958 investments of American companies in the oil industry rose at the most rapid rates. With an overall growth of direct investments (during the period up to 1967) of three times, investments in the recovery and refining of oil increased by more than 6 times, all those in the manufacturing industry increased by 3.5 times. In 1958-1970 the investments of the U.S.A. in the oil industry grew by approximately 80%, and those in the manufacturing industry increased by 3 times. In 1957, 44% of the direct investments of the U.S.A. were concentrated in the manufacturing industry. In 1970, these numbers were 37% and 42% respectively. With this it should be kept in mind that after 1957, in connection with formation of the "common market" the oil trusts of the U.S.A. made major investments in the refining of oil, petrochemical enterprises and marketing of oil products, which is to say a significant part of their investments were in the essence of the matter investments in the manufacturing industry. /92

TABLE 7 DISTRIBUTION OF DIRECT INVESTMENTS OF THE U.S.A. AMONG THE ECONOMIC BRANCHES (in billions of dollars) /93

Years	Total	Petroleum Industry	Ore Mining and Metal Smelting	Mfg. Industry	Transport, Communication and Public Services	Commerce	Agriculture	Other Branches
1929	7.6	1.1	1.2	1.8	1.6	0.4	0.9	0.6
1936	6.7	1.1	1.0	1.7	1.6	0.4	0.5	0.4
1943	7.9	1.4	1.0	2.3	1.4	0.7	0.5	0.7
1950	11.8	3.4	1.1	3.8	1.4	0.8	0.6	0.7
1957	25.3	9.0	2.4	8.0	2.1	1.7	0.7	1.4
1960	32.8	10.9	3.0	11.2	2.5	2.4	*	2.7
1965	49.2	15.3	3.8	19.3	2.1	4.2	*	4.5
1966	54.7	16.2	4.3	22.1	2.3	4.7	*	5.1
1967	59.5	17.4	4.8	24.1	2.4	5.0	*	5.5
1968	65.0	18.9	5.4	26.4	2.7	5.3	*	6.3
1969	71.0	19.9	5.6	29.5	2.7	5.8	*	7.2
1970	78.2	21.7	6.2	32.3	*	*	*	18.0
1971	86.0	24.3	6.7	35.5	*	*	*	19.6

TABLE 7 (continued)

SOURCES: "U. S. Department of Commerce. U. S. Business Investments in Foreign Countries", Wash., 1960; "Survey of Current Business", Aug. 1961, 1962, Sept. 1966, Oct. 1971, Nov. 1972.

* Summarized in the "Other Branches" column.

However, these changes in the branch structure of American export of capital touched on the developing countries only to a very insignificant degree. A total of 17% of the capital investments of American companies in the manufacturing industry of foreign governments belonged to them by the beginning of 1970 [12]. With this, four fifths of the investments in the manufacturing industry of developing countries belonged to the countries of Latin America, but here also they were concentrated primarily in branches producing consumer goods, which could be characterized as comparitively uncomplex standard mass production goods.

The governments of some developing countries, using limitations on foreign investments in the mining industry and on import of a number of industrial goods, and also by means of granting advantages for foreign investments in the manufacturing industry, are attempting to correct American capital into branches which are technically more advanced and in reality are important for the economic development of these countries. However, the American monopoly, being guided by their narrow interests, prefer to invest capital in the economies of industrially developed countries, availing themselves of the more capacious market /93 where capital invested in the manufacturing industry will bring them a large profit.

Concerning the developing countries, the monopolies of the U.S.A. preferred to invest capital in them primarily in the branches of the mining industry, siphoning off tremendous profits with this. For instance, the annual profit for all the capital invested by the U.S.A. in the oil countries of the Near and Middle East throughout the entire history of the exploitation of this region, exceeds 80% in the American monopolies, which is to say that actually all preceding investments are returned in no more than a year. Thus, in 1970 these profits amounted to 1.2 billion dollars on 1.5 billion dollars of all preceding capital investments, including reinvested profits.

The countries of the "common market", to which the major part of the foreign capital investments of the U.S.A. went during /94 recent years, still secure for the American monopolies a flow of

profits which is less than the countries of Latin American, the Near East and Canada, although these profit entries are rapidly increasing, and their specific weight in the overall total of profits is increasing. In 1970 the export of capital from the U.S.A. to the "common market" countries in the form of direct investments reached 1.0 billion dollars, and with this the profit amounted to 0.8 billion dollars. It is characteristic that still in 1966 this relationship was 1.1 and 0.3 billion dollars[13].

The developing countries remained for the U.S.A. the basic source for obtaining the highest profits. The export of American capital into these countries in 1970 was on the level of 1.0 billion dollars, and profits were 3.1 billion dollars [14]. The entry into the U.S.A. of profits from direct investments in economically developed countries in 1970 amounted to 2.7 billion dollars on 53 billion dollars of combined investments, or about 5%. Entries from the developing nations amounted to 3.1 billion dollars on 21 billion dollars of combined investments, or 15% of their overall sums[15]. In 1970 the overall sum of entries from foreign investments of the U.S.A. reached 11.4 billion dollars as opposed to 0.8 billion dollars in 1946 and 3.4 billion dollars in 1960, which is to say that in the last ten years alone these entries have increased by 3.4 times. By comparison with 1946 they rose by more than 14 times. The major part of this sum is made up by entries from private investments -- 10.5 billion dollars, including 8.0 billion dollars from direct investment [16].

The export of capital and creation of enterprises outside the limits of the U.S.A. in the conditions of the scientific and technical revolution is an important form, in which the scientific and technical advantage of the U.S.A. over its competitors is realized. The importing countries, in opening the door to American capital, are counting on bringing the newest technology of production and scientific and technical development within reach. The politics of the U.S.A. in the area of exchange of scientific and technical information consists, however, basically of all measures to maintain the monopoly on their achievements, extracting the maximum profit from them and allowing transmittal to other countries primarily of those scientific and technical developments which are unprofitable to exploit in the United States due to the introduction by other countries of limitation on the import of these goods from the U.S.A., or due to the high production expenses in the U.S.A., sharp competition and so forth. These considerations are of paramount importance when the management of an American company answers the question whether or not to produce in the U.S.A. and export some goods or others, or export the capital and reduce these goods abroad, or to sell the technology. /95

This approach was, in particular, laid out by Karl Khar, president of the Association of the Aerospace Industry, a combined group of the technologically newest branches. Speaking of ways to increase the competitive capacity of the aviation and space firms, he emphasized: "In my opinion, there are two ways. The first is participation of the government, and the second is formation of a consortium with attraction of foreign capital...of these two ways, collaboration with our own government is highly more profitable for the American economy. It would allow us to export goods, and not technology". And further: "The negative moment in the policy of combination of our efforts with foreign firms and foreign capital is the fact that in reality we will be selling the technology in order to get our share of a market established primarily by American aviation companies, and our foreign partners will get all the rest of the world market. There is also one more deficiency in this plan, which consists of the fact that, acting in this way, we will promote a rise in the technical level of foreign industry and thereby increase its competitive capacity in the future"[17].

The export of American capital in conditions of the appearance of new goods on the market is accomplished not only for the purpose of replacing the export of goods with their production on site in larger scales and with lower production costs, which allows export of goods, and is thereby protected from competition of other exporters in this market. The export of capital is also used in essence to take the market away from the local producers, from national capital, and sometimes to nip in the bud the possibility for production of a new product with national capital and for the national internal market, and for future export to the U.S.A., affirming thereby the monopolistic position of the American companies in their internal market.

A characteristic feature of the export of American private capital in conditions of the deepening general crisis of capitalism is the predominance of export of capital in the form of direct investments, assuring to the monopolies of the U.S.A. the /96
maximum profits and best possibilities for economic and political influence. According to legislation of the U.S.A. direct investments are considered those which allow companies of the U.S.A. to effect administrative and financial control over them, for which an ownership of 10% of the assets of the enterprise is considered sufficient. With an overall growth of long-term private investments over the period from 1946 through 1971 (in millions of dollars), from 12.3 to 115.6 (by almost 9.5 times), direct investments increased from 7.2 to 86.0 (i.e. by almost 12 times), and portfolio ones increased from 5.1 to 29.6 (by 5.8 times). As a result the specific weight of direct investments in the overall sum of long-term American private investments increased from 60%

to almost 75%, while that of portfolio investments was correspondingly reduced.

Control over the activity of foreign enterprises assures the monopolies of the U.S.A. the greatest possibilities for stimulation of profits using a policy of dosed-out provision of these countries with the newest technologies. As a rule, technical innovations which are introduced using American capital are limited by the frameworks of the enterprises controlling them. The management of the master companies located in the U.S.A. does not conceal the fact that it is not interested, even with definite gains, in transmitting innovations of technology to the national enterprises of other countries. This is why only assembly plants are frequently created in countries importing American capital.

The scope, direction and character of scientific and research work allowed for the controlled foreign enterprises are determined in the U.S.A. As a rule, the basic scientific and research work is conducted in the U.S.A., and the technology and new models already developed are sold to foreign affiliates and subsidiary companies. This practice, on one hand, assures the monopolies of the U.S.A. the property rights on the scientific developments and tremendous additional profits in the forms of payments from the controlled enterprises for use of the American technology and the newest control methods, and on the other, it strengthens the position of the enterprises controlled by the U.S.A. with respect to the national capital of other countries, arming these enterprises with the newest technology.

As a result of this policy, the dependency of countries importing American capital on the U.S.A. for provision of scientific and technical information has not decreased, but has increased. American companies are receiving the possibility for dosing out entries of technical innovation and thereby actually strengthening the gap in the levels of technical development. The production of the newest types of equipment is accomplished as before in the territory of the U.S.A., and American companies are not inclined toward moving away from this monopoly. /97

Thus, for instance, share of American firms in the computer market in Italy amounts to 80%. All these computers are shipped either from the U.S.A., or from affiliates of American firms from other countries of western Europe. With this, a more improved equipment, is, as a rule, shipped from the U.S.A. Forecasts on hand predict a further increase of the U.S.A.'s share in the Italian market in coming years due to shipment from the U.S.A. of new models of computers [18].

This policy varies depending on the level of development of the country in which the American capital is acting. However it is characteristic that the U.S.A. does not send the technology of production of the newest types of electronic computer equipment, the newest models of jet airplanes, equipment for production of atomic energy and production of missiles and artifical satellites used as communications means to even the most developed countries. The Englishman, John Davie, an expert on questions of scientific and technical development, makes this prognosis: "During the course of the coming decade Europe will not achieve true independence in these types of technology, and European firms will be occupied primarily with selling equipment manufactured in the U.S.A. or manufacturing it under American license".

Using their scientific and technical potential and large financial resources, the monopolies of the U.S.A., through the use of foreign capital investments, frequently place whole branches of the economies of other countries, to a large degree the newest branches of industry, under control. At the present time, the enterprises in western Europe controlled by American capital have a share of 80% of the total production of electronic computers and monitoring and measuring apparatuses, 50% of the production of semiconductors, 15% of the production of radio and television receivers and tape recorders, 95% of the integral systems, 90% of the synthetic rubber and 40% of the motor vehicles. In England these enterprises control approximately half /98
the production and export of automobiles, 35% of the tractors and agricultural machines, 75% of the electronic computers and about 75% of the cash register equipment. In the FRG they produce more than 40% of the automobiles, over 50% of the production capacity of petroleum refining belongs to them, and approximately two thirds of the production of electronic computers belongs to the share of the American company "IBM-Deutshland". In France these enterprises possess 16% of all the production capacities in oil refining and through them the market is created of more than 20% of all the petroleum products sold in France. Enterprises in France controlled by the U.S.A. produce 20% of the automobiles, 35% of the washing machines, 50% of the refrigerators, 40% of the tractors and agricultural machines, 60% of the semiconductors and electrical conductors, 70% of the sewing machines and 90% of the synthetic rubber. In this way, the superiority of the U.S.A. in the scientific and technical area is used by American monopolistic capital in the interests of assuring high profits, widespread economic introduction into the economies of other countries and strengthening in them of their own economic and political influence.

Licensing Trade

An important feature in the economic expansion of the U.S.A. in the conditions of the scientific and technical revolution is the increasing commerce in licensing. According to the amounts of profit obtained with American monopolistic capital, this type of trade at the beginning of the 1970's stood on the same level, if it did not exceed export of goods from the U.S.A., it is notable that commerce in licensing in conditions of the scientific and technical revolution is tied to the export of capital in the tightest possible manner. American firms used licensing agreements for introduction into foreign enterprises and strengthening of their positions in foreign markets. Companies of the U.S.A. are increasingly frequently including in licensing agreements articles stipulating their right to acquire the assets of the licensee (purchaser) in case of successful mastery of the license. A source of means for acquisition of the assets in this way is the licensing compensation from the transaction. Besides this, the basic mass of entries for new technology, new methods /99
of control and "marketing" and other services flow into the U.S.A. from American overseas affiliates and subsidiary companies, controlled by American capital. This is clearly illustrated by the data in Table 8.

Table 8

BALANCE OF PAYMENTS AND REVENUES OF THE U.S.A. FOR LICENSING, 1956 - 1972
(in millions of dollars)

Year	Credits			Debits		
	Total	From firms controlled on the basis of direct investments	From other firms	Total	To controlled Firms	To others
1956	362	229	133	51	28	23
1957	378	238	140	48	26	22
1958	414	246	168	51	26	25
1959	514	348	166	52	24	28
1960	837	590	247	75	35	40
1961	906	662	244	89	43	46
1962	1056	800	256	101	57	44
1963	1163	890	273	112	61	51
1964	1314	1013	301	127	67	60
1965	1454	1119	335	135	68	67
1966	1682	1329	353	140	64	76
1967	1845	1438	407	167	62	105
1968	2007	1546	461	187	80	107
1969	2205	1682	523	221	101	120
1970	2480	1880	600	230	111	119
1971	2790	2169	621	216	91	125
1972	3015	2345	670	...*	...*	...*

SOURCE: "Survey of Current Business", June 1971, March 1972
* ... no data

The gains which were realized primarily in the area of the scientific and technical revolution by means of the export of capital and creation of production enterprises overseas, provide for the United States in the area of foreign economic expansion and is graphically manifested in the balance of calculations for licensing.

These data first of all show the extremely rapid growth in revenues from this type of trade. According to evaluations on hand [19]: The average profits from sale of goods for export reach 4-5%. If it is considered that the export of goods in 1970 amounted to 42 billion dollars, then it could be presumed that the profit amounted to 1.7-2.1 billion dollars. This gives basis for arriving at the conclusion that according to the amounts of profit, the sale of licensing now stands on the same level, if it does not lead such a type of operation on foreign markets as export of goods. The assets in licensing trade of the U.S.A. increased from 311 million dollars in 1956 to 2574 million dollars in 1971. With this the revenues increased by more than 8 times, and payments by less then 3 times. The relationship of revenues and expenses changed from 7 : 1 in 1956 to 13 : 1 in 1971.

Analysis of the balance of revenues and payments in the licensing trade of the U.S.A. shows that the most intensive trade in them is between the U.S.A. and industrially developed countries. The major purchasers of licenses are Western Europe, Japan and Canada. Half the export licensing agreements concluded with the Western European countries are with countries of the EEC. The share for countries of the European Association for Free Trade was 23.6% of the overall number of transactions. According to import of American licenses, the first place in Europe is occupied by England, which significantly leads all the remaining Western European countries and lag behind only Japan. The explanation of this fact should be sought in the strong positions which American capital occupies in the English economy.

Nearly 50% of the income of the U.S.A. from this type of trade comes from the countries of Europe. With this the assets of the U.S.A. in licensing commerce over the course of the last ten years is showing a tendency toward rapid growth.

In 1971 trade with Western Europe provided about 50% of the /100 overall assets of U.S.A. licensing trade. The share of this area in the overall sum of revenues increased from 33% in 1957 up to 50% in 1971. Over 15 years (1957-1971) the entries from Western Europe have increased by 9 times, while payments have increased by less than 4 times and assets by 11 times.

As on the whole throughout the world, the major part of the entries from U.S.A. trade in licensing with Western Europe comes from subsidiary companies, controlled by the American monopolies on the basis of direct investments. Over 15 years (1957-1971) the overall sum of entries from these companies increased by almost 9 times -- from 229 million up to 2169 million dollars, while entries from other firms increased by 5 times, from 133 million up to 621 million dollars. In Western Europe the entries from controlled enterprises rose from 148 million up to 1355 million dollars and from other firms, from 89 million up to 267 million dollars.

Concerning payments, American statistics show another picture: the payments to the controlled companies increased more slowly than to other firms. The share of payments to controlled firms in the total sum of payments decreased from 55% in 1956 to 42% in 1971. /101

These figures testify to the fact that the American firms, striving to maintain their monopoly over the newest technical achievements and processes, are simultaneously appropriating new scientific and technical achievements which are developed at the controlled enterprises, and paying only for what they need and what is on hand at independent firms.

Comparison of the by-branch structure of licensing trade with the structure of expenditures for scientific research and development in the U.S.A. reveals a definite order: the high specific weight of the leading branches in the volume of expenditures for science predetermines their dominating position in the export of licenses.

If one computes the share of the electrical equipment and electronics industry, general and transport machine building, the chemical and pharmaceutical industry and instrument building in the total sum of expenditures for scientific research and development of American firms, then it turns out that in the 1960's it amounted to over 50%. Correspondingly, two thirds of the licensing agreements signed in 1961-1969 belonged to these branches.

A significant quantity of licensing transaction has also been concluded in older branches (the sewing and textile industry and food). Their share amounts to 13.3%. This is explained by the fact that the American monopolies, not desiring to yield their positions in the world production and sale of given types of production, are also intensifying scientific searches in "traditional" branches of industry.

One of the factors assuring the American companies an advantage over their competitors in foreign markets in the conditions of the scientific and technical revolution, is the superiority of the U.S.A. in the area of management. Modern methods of management are used by the American companies for realization of their superiority in the area of scientific and research work, to extract the maximum profits from the sale of new goods for export and setting up production and the sale of these goods by affiliated and subsidiary companies of the /102
American firms outside the limits of the U.S.A. The newest methods of management are used for planning (including long-term plans over 10-15 years) of production and sale on the foreign market and for establishment of prices on goods produced and sold on foreign markets which are the most profitable for U.S.A. policy. American economists are increasingly seeing management as a composite independent element of the production process, having an especially great meaning during a period of rapid scientific and technical progress and an active increase in production and sale of new goods on the foreign market. These economists consider that the proper selection of a management system, which is in itself a system of definite ideas in the control of people and processes, transformed into tangible assets, is in essence the same type of necessary part on the production process as capital, working force, production means and production technology. The newest management methods in the area of the scientific and technical revolution have become an important good in the foreign trade of the U.S.A., along with technology, information and conventional goods. It is indicative that the payments of affiliated and subsidiary companies for utilization of services rendered them by the master companies is only half payments for technology. The other half is payments for the newest methods of management and similar services [20].

The superiority of the American companies in the area of management in a number of cases is the deciding advantage of affiliated and subsidiary companies, controlled by the monopolies of the U.S.A. Together with this it assures a much higher profitability of the work of these enterprises by comparison with similar enterprises controlled by foreign capital. In this respect the results of an investigation conducted by the English economists J. H. Dunning, D.C. Rowan and B.L. Lohus are indicative. These investigations showed that the profitability of American affiliated and subsidiary companies in Western Europe and Australia is higher then in companies controlled by English capital, although their operations are conducted in approximately identical conditions [21].

The American companies have an advantage in the areas of supply of capital, production technology, organization of pro- /103
duction and management. The export of capital controlled by the American companies, the production apparatus and the far-flung

network of sales enterprises outside the limits of the U.S.A. are becoming a tool which assures the realization of these advantages by means of moving production outside the national borders and expanding the sphere of sphere of exploitation through attraction of millions of foreign workers and consumers into it. The final results are rising profits, which the monopolies of the U.S.A. see from the overseas financial empire.

How the American companies use their superiority in the area of technology and management can be judged if only according to the fact that in recent years in connection with definite limitations on the export of new capital from the U.S.A. the scientific and technical knowledge, and frequently namely the "know-how" and "management" are basic elements with which the American companies strengthen the positions of the production controlled by them abroad. Participation of American capital in these cases is insignificant, and sometimes all the capital is attracted on the local market.

The conversion of the newest methods of "management" into its own type of capital and profit can, for instance, be traced in the experience of the activity of American companies in the area of treatment of food-stuffs, and also in retail commerce and the banking business. At the present time the basic investments by American companies in these areas are their newest methods of "management". The activity of American companies in these branches of the economies of foreign governments have increased during recent years, regardless of the fact that the only item of trade with which the American companies frequently appear here is in the essence of the matter "management" and the newest accounting equipments.

The American magazine "United States News and World Report" in the issue of July 14, 1969 in the article "The Growing Threat to U.S. Companies in Latin America" presents the words of a Latin American businessman, who says that he knows American companies, "who give only their company's trademark and nothing else and took for this 25 and 30% of the income. Giving almost nothing for the economic development of the country, they exported tremendous sums of currency".

The following data also testifies to the striving of the /104
U.S.A. to use its superiority in the area of technology and "management". In 1968, when the American official statistics of direct capital investments showed an increase by 5.0 billion dollars, the actual new capital investments exceeded this sum by more than double, and amounted to almost 10.7 billion dollars. With this, the entry of capital from the U.S.A. amounted to a total of 1.6 billion dollars, which is about 15% of the total sum of new capital investments. A sum twice as large -- 3.3 billion dollars (or 31%) represented attracted capital. The

remaining part was: amortized deductions -- 3.9 billion dollars (36%) and undistributed profits -- 1.6 billion dollars (15%) [22]. In the countries of Western Europe, the share of attracted local capital is still higher, and reached 90% [23]. In this way, the western Europeans in essence themself paying for the purchase of the newest branches of industry by the American companies. In 1972 new capital investments of the U.S.A. abroad were planned for an amount of 15.2 billion dollars [24]. The structural proportions of these capital investments listed above will in all probability remain as they were previously.

The United States frequently accomplishes export of "management" separately from export of capital, concluding multitudinous agreements with foreign firms on "technical collaboration" and on "aid" in the area of "management". With this, however, it was revealed that the use of American "management" method of controlled foreign enterprises assures higher profits than the separate export of "management" alone, which is to say transmission to foreign companies of exclusively American experience in the area of "management". It is recognized that the combination of export of capital with export of new management methods will assure the American companies stronger maintenance of their monopolistic position in the production and sale of one item of trade or another and will strengthen the competitive positions of the U.S.A. in the most effective manner.

In this way, the overall superiority of the U.S.A. in the area of productivity of labor and technology strengthens their competitive capacity in the area of production and sale of many goods. The striving of the American monopolies to extract super profits in conditions of the scientific and technical revolution forces them to seek ways of more effective expansion of production and sale of their goods, and the maximum return for capital spent and for means expended on scientific and research work and on improvement of methods of organization of production and "management". The export of capital, creation of production and sales enterprises abroad, controlled by American capital and the sale of licenses are an important means for realizing these advantages and securing super profits. /105

Patent Policies of the U.S.A. Abroad

The patent policy which the U.S.A. conducts on the international area is also a highly important instrument in the competitive struggle in the conditions of the scientific and technical revolution and the struggle for strengthening its economic positions on the world market and for new spheres of influence.

As a rule, foreign patenting of inventions is effected in those countries where the American monopolies are interested in protection of their export, in blocking off a sale market for competition and in conducting licensing operations.

At the beginning of the 1970's foreign patenting of American inventions reached extremely impressive scales. While in 1967 U.S.A. firms received protection for 23,000 inventions, having sent 115,000 patent applications abroad, in 1907 they patented 60,000 inventions abroad. In the opinion of American specialists, the sending of a large number of patent applications with overall expenditures for this of about 200 million dollars per year, coincides with the interests of the U.S.A. both on the conduct of its export operations, and with conclusion of licensing agreements.

In the sharp interimperialistic competitive struggle, developing in the conditions of the scientific and technical revolution, as it is considered in the U.S.A., the old forms of coarse dumping are receding before new means of market conquests, based on science [25]. The export of scientific and technical achievements and patent expansion, in its trend, is becoming one of the methods for penetration of American capital into the economics of other governments, and a means for further, frequently unnoticed reworking of the capitalist world and recarving spheres of influence.

Investigation of the character and direction of the patenting and licensing operations accomplished by the U.S.A. in foreign countries testifies to the active utilization by it of this factor of its scientific and technical potential abroad. /106

It should first of all be noted that in all capitalistic countries the share of patents belonging to foreign organizations and persons is greater than the patents belonging to its own citizens. It is characteristic that the highest percentage of foreign patents belongs, as a rule, to applications from the U.S.A.

American firms are, as a rule, obliged to submit applications for all their more or less significant and perspective inventions to the following 11 countries: the FRG, Japan, Great Britain, France, Italy, Belgium, The Netherlands, Switzerland, Sweden, Canada and Australia. This "fan" encompasses the leading capitalistic governments with respect to technology.

The apparent purpose of this strategy of the American monopolies is, in particular, blocking the basic areas of new technical developments with their patent applications.

Statistics for 1969 [26] show that the Americans sent the following number of applications to these countries (as a percentage

with respect to the total number of all applications sent):

FRG	- 19.4%	Netherlands	- 27%
Japan	- 12.4%	Switzerland	- 16.4%
Great Britain	- 22.7%	Sweden	- 24.6%
France	- 23.7%	Canada	- 59.6%
Italy	- 25.3%	Australia	- 35.9%
Belgium	- 27.6%		

Figures reflecting the portion of patent applications of the U.S.A. in the total number of foreign applications appearing in the 11 countries previously named are even more indicative:

FRG	- 37.8%	Netherlands	- 29.7%
Japan	- 45.3%	Switzerland	- 16.4%
Great Britain	- 38.1%	Sweden	- 24.6%
France	- 34.8%	Canada	- 59.6%
Italy	- 31.7%	Australia	- 35.9%
Belgium	- 28.1%		

On the world patent market approximately more than 1/3 of /107 the applications for concession of rights of protection to foreign inventors fall to the share of the U.S.A. With this at the end of the 1960's the U.S.A. received three times more patents in the countries of Western Europe than did the Western Europeans in the U.S.A.

Basically, the American firms received patents on inventions on the area of the chemical industry, electronics, the atomic industry, transport machine building and electrical equipment.

A definite dependence of Western Europe on the U.S.A. with respect to new technology and many modern technical solutions is accompanied by a noticeable outflow into America the better qualified and motivated cadrays and by an increase in the flow into Western Europe of American technical achievements in the form of conclusion of agreements on purchase of licenses and patents. This penetration is especially noticeable in areas which are most closely tied with the modern scientific and technical revolution.

A significant technological gap between the U.S.A. and the countries of Western Europe forces the latter to combine their scientific and research base, create patent pools and develop technical specialization and production cooperation.

The Western European integration is taking on an ever increasing technological direction, which has its own goal and frequently leads to conduct of agreed-upon scientific and technical

policies, the accomplishment of major international projects in the area of power production, space research and airplane building, both on the intergovernmental level, and especially on a level of collaboration of firms in branches of industry which are directly tied to scientific and technical progress.

The patent policy of the U.S.A. with respect to the developing countries is dictated primarily by the striving of the monopolistic combines and firms, possessing a large number of patented technical solutions, to acquire the exclusive rights for them in the developing countries. This strengthens the positions of American capital in the competition struggle both with national industries and with the capital of other countries, and allows retention of many key positions in sales markets and in the economy.

These plans are characterized relatively eloquently by /108
chief of a section of the U.S. Department of State G. Winter: "The government of the United States, within the framework of its overall policy --- announced to the developing countries that review of laws for the purpose of limiting or softening patent protection can inflict losses on the attractive power of the country with respect to foreign investments and make the rendering of technical assistance to this country difficult. The government of the United States has also constantly pointed to the value of foreign investments as a direct prerequisite for the development of technology and economic growth of a country" [27].

The former assistant patent commissioner O. Bryan, speaking of the developing countries, expressed himself in the same spirit: "We believe that the economic development of these countries is strengthened as a result of rendering aid in the manner of improving their patent system. This aid creates conditions which will be attractive for businessmen of the U.S.A."[28].

In the conditions of the modern scientific and technical revolution the patent strategy of the American monopolies with respect to the countries of Asia, Africa and Latin America is undergoing definite changes. The former policy of narrow agrarian and raw material specialization of a developing country is acknowledged to be largely unrealistic. For the monopolies of the new industrial branches the colonial structure of the economy of many of the developing countries is becoming to a significant degree a brake on the road to expansion of their exploitation on the basis of modern methods, corresponding to the conditions of the scientific and technical revolution. The American monopolies have no objection to having in the "third world" capacious sales markets, certain highly productive branches of the economy and to a sufficient degree a qualified working force.

With this it should, however, be kept in mind that the patenting legislation and systems of patent protection in effect at the

present time in the developing countries were created there first of all in the interests of foreign owners of technical achievements. The system of so-called affirmed and imported patents, established by the patent laws of a number of the countries of Latin American and Africa serves these very interests of the large monopolies of the capitalistic countries. Imported and affirming patents -- this is in essence granting of a privileged rate to foreign patent possessors, who upon /109 observation of certain formal conditions can register on the territory of a given country a patent, issued in another country without changing its essence and scope of protection granted [1].

During the period from 1964 through 1968 the U.S.A. increased the issue of patent applications in the developing countries by more than 3 times.

A study of the structure of patenting of inventions by American firms in the developing countries shows that the basic goals of patenting are the denial of access to the markets of those countries of competing foreign monopolies, and also a striving of the U.S.A. to block national scientific and technical development in certain branches of industry or others and establish control over the perspective sales market.

The overwhelming majority of patents received in the developing governments belong to foreign patent possessors, and the dominating role among these is placed by American citizens and firms.

This is testified to, for instance by the following data from 1970 [29]. The share of patent applications submitted by the monopolies of the U.S.A., among the total number of foreign applications, looks like the following according to a number of countries (in percentages): Argentina -- 42.8, Brazil -- 42.4, Venezuela -- 58.5, Colombia -- 54.7, Chile -- 41.6, Uruguay -- 29.2, the Philippines -- 49.1, Singapore -- 55.7, Hongkong -- 58.4, India -- 25.9, Ceylon -- 13.5, Turkey -- 24.3, Iran -- 27.9, the United Arab Republic -- 19.2 and the Afro-Malagasy

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[1] The institute of imported patents of known, for instance, in the legislation of Belgium, Spain, Morrocco, Peru and Turkey. An affirming patent can be obtained in the following countries: Argentina, Bolivia, Venezuela, Guatemala, Honduras, the Dominican Republic, Spain, Columbia, Costa Rica, Mexico, Nicaragua, Panama, Paraguay, Salvador, Tunis, Uruguay, Sri Lanka (formerly Ceylon), Chile and Ecuador (see "Spravochnik izobretatel'skogo i patentnogo prava stran mira", Handbook of Invention and Patent Rights of the Countries of the World, edited by M. M. Boguslavskiy, Moscow, 1965).

Union [2] -- 17.2.

From the data presented it is evident that the American patent possessors play a dominating role in the export of new technical achievements into the major countries of Latin America, perfecting in turn the markets of these countries from penetration of competitors from Europe, Asia and Australia. /110

The patent interests of the U.S.A. are also widely represented in the countries of Southeast Asia. On the face, these are persistent attempts by the Americans to occupy strong positions in the traditional British sphere (India and Sri Lanka) [3]. Boosting of the activity of the U.S.A. in the area of patenting technical innovations in Africa has also occurred.

Using the patenting and licensing operations as one of the means for economic expansion into the developing countries, the U.S.A. is concluding licensing agreements which are not, as a rule, with profitable conditions for these countries.

Analysis of the basic directions of the patent policies of the U.S.A. allowed the conclusion to be drawn that in American monopolies, supported by the government, are attempting to use this policy as a means for maintaining the technological gap between the U.S.A. and other capitalist countries and as a weapon of neocolonialism in the developing countries. The steady basic tendency with this is a constant growth of foreign patenting and an increase in licensing operations.

Foreign Trade

The scientific and technical revolution has a great effect on the development of foreign trade of the U.S.A. It causes essential changes both in the goods structure of the trade, and in its geographical direction.

Under the influence of scientific and technical progress, over the course of the last fifty years in export and import the U.S.A. is constantly increasing the share of finished products and reducing the share of industrial materials and raw materials. These changes became especially noticeable after the Second World War. The share of finished products in American exports

[2] The following belong to this combine of African governments: Cameroon, Ivory Coast, Dahomey, Gabon, Upper Volta, the Malagasy Republic (Madagascar), Mauritania, Niger, the Central African Republic, Congo (Brazzaville), Senegal, Chad and Togo.

[3] For instance, of the 1051 licensing agreements concluded by India with foreign firms and in effect in 1968, the share belonging to firms of the U.S.A. amounted to 19%.

before the Second World War amounted to about 30%. Over the period from 1946 through 1958 it rose to 44% and continued to increase during subsequent years, comprising more than half /111
(51.2%) by 1970. The increase in the share of ready products in the U.S.A.'s export was basically connected with an increase in the share of capital equipment from 14% in the pre-war period up to 33%, which is to say 1/3 of the export, by the 1970's. The increase in the share of finished products in the U.S.A.'s export occurred basically due to a reduction in the share of industrial materials and raw materials. The share of industrial materials and raw materials in export dropped from 56% in the postwar period to 38% in the years 1946 - 1958, and 32% in 1970. The share of food products, feeds and beverages in the total export of the U.S.A. is relatively stable. During the course of the last 50 years it has fluctuated between approximately 12 and 17%.

In the total volume of supply and demand on the modern world capitalist market, the specific weight of goods with a high degree of processing is rising at the most rapid rates, and expenses connected with scientific and research work occupy a significant portion of their cost. Science-consuming branches, as practice shows, are the most promising branches for export trade. In the world export of production of science-consuming branches of industry, which is to say those branches where expenditure for scientific and research work are especially great, the U.S.A. occupies the fleeting position. These branches include the chemical industry, machine building, primarily production of metal machine equipment and equipment for the chemical industry, means and instruments for automation, aviation equipment and motor transport means, the electronics industry and production of electric power and atomic power equipment.

As was noted earlier (see Chapter I), during recent years the U.S.A. has moved into an area of significant economic difficulties, particularly in its foreign trade sphere. At the end of the 1960's and beginning of the 1970's the favorable balance of trade in the U.S.A. practically disappeared, and in 1971-72, for the first time in the 20th Century, the U.S.A. had an unfavorable balance of trade. It should, however, be noted that this unfavorable trade balance was basically formed due to trade in goods of old branches (see Table 9). In the trade of the newest goods and capital equipment the U.S.A. has a large favorable balance, which has increased from 6.6 billion dollars in 1965 to 8 billion dollars in 1971.

Even now, goods of the technological newest branches (products of the electronics industry, airplanes, equipments for /112
the chemical, metal machining and electrical equipment industry, for automatic and flow lines, for atomic power stations, rocket

and space equipment, accounting equipment, everyday electrical appliances and so forth) amounts to about two thirds of the total volume of American export.

The favorable balance in the trade of airplanes, electronic computers and chemical goods by the U.S.A. has risen especially sharply in recent years. This testifies to the fact that in the production of the newest types of goods the U.S.A. is still maintaining strong competitive positions.

The reduction in the share of industrial materials and raw materials in the export was effected not only by the technological changes caused by the scientific and technical revolution, but also the premeditated policies of American business, directed at conservation of American non-renewable natural resources. Limitations on development and export of oil from the U.S.A. are, for instance, commonly known. Following this policy, the American monopoly created a powerful raw material base outside the limits of the U.S.A. itself. At the present time the drilling of oil by American companies outside the limits of the U.S.A. exceeds by several times the export of oil from the U.S.A. Besides this, oil which is imported from controlled enterprises covers an essential part of the internal demand of the U.S.A.

A characteristic mark in the import of the U.S.A. in the conditions of rapid scientific and technical progress is the rapid rise in the volume of import of industrial materials and raw materials with a relative reduction in the specific weight of goods of this group in the overall import. This is also explained to a significant degree by a reduction in material consumption for production of a unit of a product in the conditions of scientific and technical progress. The import of industrial materials and raw materials reached on the average 60% of the total import in the pre-war period and about 50% of that in the 1960's; after that this share dropped to 42% in the last half of the 1960's and to 38% in 1970.

A characteristic earmark of American postwar foreign trade is the rapid rise in the specific weight of finished products, not only in the import, but also in the export of the U.S.A. The share of finished products in the import of the U.S.A. increased at an even faster pace than in export. It increased from 10% during the pre-war period and the first postwar years to 22% in 1959-1965. The period 1966-1970 when the share of trades /113
of this group in import almost doubled under the influence of inflation in the U.S.A. and amounted to 43.3% was one of especially rapid growth in the import of finished products. An increase in the share of finished products in the total import touched three basic groups of products to the highest degree: 1) consumer goods, with the exception of foodstuffs, 2) automobiles and 3) capital equipment.

TABLE 9

FOREIGN TRADE OF THE U.S.A.
IN GOODS OF OLD BRANCHES AND TECHNOLOGICALLY NEW GOODS
(in millions of dollars.

	1951-1955 avg.per year	1957	1962	1964	1969	avg.ann. increase (%) 1951-1962	avg.ann. increase (%) 1962-1969
Goods of old branches							
Export	3711	4045	3452	4419	6211	—0.8	7.0
Import	1884	2900	5107	6038	11687	11.5	12.0
Overall balance	1827	1145	—1655	—1129	—5476	—	—
Export on government programs	..	...	246	211	92	—	—17.0
Balance on commercial trade	..	...	—1901	—1340	—5568	—	—
New goods							
Export	6690	8752	10216	12110	20553	5.0	10.0
Import	897	1570	2542	3068	11334	12.3	24.0
Overall balance	5793	7182	7674	9042	9219	—	—
Export on government programs	...	...	1816	1922	1440	—	4.0
Balance on commercial trade	..	...	5859	7120	7779	—	—

The rise in the share of finished products in the import of the U.S.A. reflects a strengthening of the competitive capacity of the imperialistic rivals of the U.S.A. On the internal market, the American monopolies are feeling sharp competition from the Western European and Japanese firms, producing automobiles, radio equipment, televisions, tape recorders, and some types of /114
equipment, footwear and clothing. With respect to some of these goods the import reaches more than 50% of the overall demand for them in the U.S.A. Together with this the politics of the multinational American monopolies, which shifted part of the basis for their production outside the limits of the U.S.A., setting up production there of goods for shipments to the American market, had an effect on the rise on the U.S.A.'s import. Shipment of goods to the U.S.A. by affiliated and subsidiary companies of the American monopolies presently amounts to 25-30% of the total import of the U.S.A., and finished products occupy a constantly increasing portion of these shipments. For instance, in Hong Kong, Mexico, South Korea and Taiwan the American firms have

created their own enterprises for production of electrical equipment and some other finished products especially for import to the U.S.A. Exploitation of the cheap working force in these enterprises assures large additional profits to the American companies [30].

As with the export of capital, with trade licensing, the scientific and technical revolution intensify the flow of goods, and especially the movement of new goods between developed capitalist countries. The overall rates of increase in the export of the U.S.A. to these countries and import from these countries, as the data in Table 10 shows, were significantly higher than the rates of increase of goods with the "rest of the world", where the developing countries are primarily united. This gap is most significant in the trade of goods of the science-consuming branches (Table 11). In 1971 the U.S.A. had a favorable balance with the countries of Western Europe in trade of science consuming goods, in an amount of about 1.6 billion dollars. The only country with which the U.S.A. had an unfavorable balance in the trade of science-consuming goods at the beginning of the 1970's was Japan.

In the 1970's the U.S.A. is projecting further specialization in the production of the newest goods and a significant increase in the shipment of goods of this category for export.

However, in the conditions of the unprecedented aggravation of the imperialist struggle for market influence the preserved scientific and technical superiority of the U.S.A. no longer gives it those advantages which they had in the first postwar years. The disappearance of a favorable balance of trade, which reached 5-6 billion dollars at that time, and the appearance of a large unfavorable balance of trade is an obvious manifestation of this. This change in the trade balance of the /115
U.S.A. was caused by a deepening of a crisis of the entire balance of payments and undermine trust in the dollar. It is one of the major reasons for the currency storms which have shaken the capitalist world during recent years. The task of re-establishing the favorable balance of trade has now undertaken a great foreign political meaning for the ruling circles of the U.S.A. A large favorable trade balance is also seen by them as a necessary condition for financing the foreign political actions of the U.S.A., including military expenditures abroad and granting of "aid" to foreign governments. Striving to strengthen the competitive capability of American export and simultaneously /116
limit the import of goods into the U.S.A., the ruling circles of the U.S.A. have conducted two devaluations of the dollar, stepped up customs protection of the entire internal market and have improved the state-monopolistic mechanism for forcing foreign

economic expansion. However, these measures will unavoidably lead to a new aggravation of the contradictions, to a step up in the trade war between the imperialistic powers and aggravation of the entire complex of economic and political contradictions.

TABLE 10 FOREIGN TRADE OF THE U.S.A. WITH ALL TYPES OF GOODS (in millions of dollars) /145

	1962	1964	1968	1969	Average Increase 1962-1969 (%)
Total:					
Export	21444	26297	34199	37444	8.0
Import	16464	18749	33286	36052	14.0
Balance	4980	7548	913	1392	- -
Export Acc.to gov't.programs	3508	3752	2688	2550	-8.0
Balance in comm'l trade	1472	3796	-1715	-1158	- -
Western Europe:					
U.S.A. export	7637	922	11132	12370	6.0
U.S.A. import	4552	5209	10139	10140	12.0
Balance	3085	4013	993	2230	- -
Japan:					
U.S.A. export	1574	2018	2954	3490	10.0
U.S.A. import	1358	1767	4057	4888	19.0
Balance	216	251	-1103	-1398	- -
Canada:					
U.S.A. export	4052	4921	8072	9138	12.0
U.S.A. import	3684	4265	9005	10390	19.0
Balance	368	656	-933	-1252	- -
Other Regions of the World					
U.S.A. export	8181	10136	12041	12446	5.0
U.S.A. import	6870	7507	10028	10634	7.0
Balance	1311	2629	2013	1812	- -

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V. I. Lenin gave a deep analysis of such phenomena which are inherent to imperialism as "international cartels", "economically international trust", "international trust" and "world wide trust"[31]. The correctness of leninist analysis is fully supported.

The process of forming "economically international trusts" and activating their activity is one of the most characteristic features of modern foreign economic expansion of the U.S.A. monopolies in conditions of the scientific and technical revolution. The attention of many American economists is attracted to this process at the present time, and it is accumulating an ever larger impression of the foreign economic policies of the U.S.A.

TABLE 11 FOREIGN TRADE OF THE U.S.A. IN TECHNOLOGICALLY NEW GOODS (in millions of dollars) /116

	1962	1964	1968	1969	Average Increase 1962-1969 (%)
Total:					
Export	10216	12110	18416	20553	10
Import	2542	3068	9411	11334	24
Balance	7674	9042	9005	9219	- -
Export Acc. to govt. programs	1816	1922	1411	1440	-4
Balance in comm'l trade	3858	7120	7585	7779	- -
Western Europe:					
U.S.A. export	3055	3563	5106	5741	9
U.S.A. import	1415	1713	3887	4098	19
Balance	1640	1850	1219	1643	- -
Japan:					
U.S.A. export	592	620	929	1177	10
U.S.A. import	294	456	1440	2005	32
Balance	298	164	-511	-828	- -
Canada:					
U.S.A. export	2022	2593	5244	5891	18
U.S.A. import	610	690	3593	4530	39
Balance	1412	1903	1651	1361	- -
Other Areas of the World:					
U.S.A. export	4547	5334	7137	7744	8
U.S.A. import	223	209	491	701	19
Balance	4324	5125	6646	7043	- -

In the September issue of 1968, an organ of the large American business magazine "Fortune" noted: "Even five years ago they (the international monopolies -- author) were not even mentioned in a single textbook on world economic relationships. Now, foundations and corporations are giving out large sums for research of this phenomenon, and learning institutions are compiling studies of these questions at the basis of their courses, and

they are increasingly frequently figuring in the speeches of government activists, having their own purpose of giving and inspiring analysis of the direction in which the world is developing". In the newest economic literature of the capitalist West, a number of terms have appeared, with which attempts are being made and defining this new type of monopoly ("multinational", "international" and "transnational"). The largest companies, whose activities have stepped far outside the limits of national state borders, are defined with these terms.

The economic basis for development of these large monopolistic enterprises in the U.S.A. during the postwar period is the growth of the accumulation of capital, the concentration of production and capital, the scientific and technical revolution, the growth of internationalization of production, deepening of the international division of labor the relatively favorable conditions during the postwar years for application of capital into industrially developed countries.

Also, although the development of international monopolies was caused by the action of a whole number of factors, among them the scientific and technical revolution is one of the main ones.

V. I. Lenin in the work "Imperialism as a Higher State of Capitalism" indicates: "The monopolistic union of capitalists, cartels, syndicates and trusts designed between themselves primarily the internal market, encompassing the production of a given country in its own, more or less full, possession. However, with capitalism the internal market is unavoidably connected with the foreign one. Capitalism created a worldwide market long ago. Also, as the export of capital increased and foreign and colonial communications and "spheres of influence" of the largest monopolistic unions were expanded in all ways possible, the matter "naturally" evolved to a worldwide agreement between them and to formation of international cartels. /118

This is a new stage in the worldwide concentration of capital and production, incomparably higher than the previous ones"[32].

The United States is the country with the highest concentrations of capital and production. Not one other capitalist country possesses such tremendous resources in capital, concentrated in the hands of the most powerful industrial, banking and financial organizations and capable of serving not only the demand of the internal production and market, but also filling the role of international banker. The largest American monopolies, having available to them the far-flung network of production, sales and banking apparatus in other countries are modern examples of international monopolies and "economically international trusts".

The international monopolies of the U.S.A. make up a small group of the largest companies, controlling corresponding branches of the U.S.A.'s economy, whose activity has moved far outside the limits of national borders. These companies made the entire capitalistic world their sphere of activity. They practice an entire complex of means of foreign economic expansion: export of capital, sale of licenses and traditional foreign trade. A significant part of the production apparatus of the international monopolies is concentrated outside the borders of the U.S.A. Their sales network is stretched across the entire capitalist world. In the total volume of revenues of these companies the profits from operations outside the borders of the U.S.A. are constantly increasing. For some of them the American internal market is only a sector of the world capitalistic market, and /119
markets in the U.S.A. are only a part of their worldwide operations. For instance, after limitations on moving capital inside Western Europe were rescinded and the risk of losing capital decreased, in their plans and actions on moving new capital investments, many American companies in essence stopped delineating the difference between investment of capital in the U.S.A. itself and in Western Europe.

Increasingly frequently the only criteria for international monopoly is the criterion of profitability of their investments. One of the lastest surveys of 92 of the largest American companies showed that 39 of them do not make any sort of difference between internal investments and foreign ones. This approach was manifested especially clearly in relation to the country of Western Europe. Seeing Western Europe as an area of "reduced risk" of loss of capital and disruption of operations of controlled enterprises, the American companies even go so far as to be satisfied with lower profits in Europe by comparison with the profits which they might obtain by investing capital in the developing countries.

The American international monopolies are attempting to actively use the great advantages which the global stand of their operations in essence afford them. Since such a company operates in many countries and on many markets, where on the surface there is a different wage scale, a different demand, different interest rates and different tax legislation, it is has great possibilities, through coordination of the activities of its enterprises located in these countries (and frequently deals between them), of buying at the lowest possible costs and selling at the highest possible costs.

The international monopolies of the U.S.A. locate enterprises abroad so that their production base is located in areas of a cheap working force and raw materials, and a sales network in areas with the highest demand. They have significant possibilities for curency machinations, price manipulation and concealment of profits from taxes, both in the country where the profits

were obtained, and in the U.S.A., where the profits are transmitted. Concealment and transmittal of profits from one country into another and in the final account into the U.S.A. is achieved by designating inflated or reduced prices in the trade of affiliated and subsidiary companies between each other and the parent American companies. All this assures /121
for the American worldwide monopolies a record rise in profits and solid competitive capability by comparison with their rivals in foreign markets.

An impression is given of the span of foreign economic expansion by these super monoplies of the U.S.A. by the data in Table 12.

TABLE 12 COMPANIES WITH THE MOST HIGHLY DEVELOPED OVERSEAS OPERATIONS /120

		Turnover in 1967 (in mill. of dollars)	No.of countries where company has production enterprises	Share of foreign assets in total assets (in %)	Share of sales abroad in total turnover (%)	Share of rev. in foreign operations in total net profits (in %)
1	"General Motors"	20026	24	15[3]	14[3]	7[3]
2	"Standard Oil (N.J.)"	13266	45[1]	56	68	52
3	"Ford Motors"	10516	27[1]	40	36	92[5]
4	"Chrysler"	6213	18	31[3]	21[2 3]	...
5	"Mobile Oil"	5772	38[1]	46	...	45
6	"Int'l Business Mach."	5345	14	34	30[2]	32
7	"Gulf Oil"	4202	48[1]	38	...	29
8	"Dupont"	3102	16[1]	12	4	...
9	"Int'l Tel. & Tel."	2761	60	47	47	50
10	"Goodyear Tire & Rubber"	2638	35	22	30[2]	30
11	"Int'l Harvester"	2542	18[1]	21[4]	17	10
12	"Caterpillar Tractor"	1472	14	25	14	...
13	"Minn.Mining & Mfg."	1231	24	29	30	29
14	"Singer"	1138	28[1]	58	50[2]	...
15	"Corn Products"	1073	33	47	46	49
16	"Anaconda"	1048	9	44	32	57
17	"Colgate-Palmolive"	1025	43[1]	50	55[2]	...
18	"Nat'l Cash Register"	955	10	41	44	51
19	"Massey-Ferguson"	845	22[1]	84	90	...
20	"Heinz (H.J.)"	691	15	55[4]	47	57
21	"Warner-Lambert Pharm"	657	47	32	33	33
22	"Pfizer (Charles)	638	32	50	48	52
23	"American Standard"	600	21[1]	30	28	39
24	"Abbot Laboratories"	303	24	27	26	26
25	"USM Corporation"	284	25	50	54	57

TABLE 12 (Notes)

[1] Including unconsolidated subsidiary enterprises, i.e. enterprises whose activity is not reflected in the balance sheet of the parent company.

[2] Including export shipments from enterprises located in the U.S.A.

[3] Excluding Canada.

[4] Share in net assets.

[5] The assets of "Ford" from enterprises in the U.S.A. were significantly lower than normal due to the effect of a strike.

In the majority of these companies the share of foreign assets of profits from foreign investments and sales outside the frontiers of the U.S.A. amounts to 30% or more.

The oil trusts of the U.S.A. together with the automobile monopolies, heading up the backbone of the international monopolies, created on a base of export of capital outside the limits of the U.S.A. a widespread network of production and sales enterprises. The major part of their production apparatus was located inside the borders of the U.S.A. Foreign enterprises of the trust "Standard Oil of New Jersey" yield about 80% of all the oil recovered by it. Data on five of the largest oil companies show that the share of profits from overseas enterprises amounts to from 30 up to 52% in them. The field of activity of these companies is gradually being shifted outside the limits of the U.S.A. where even now over 40% of the assets controlled by the American monopolies are located. At "Standard Oil", the volume of sales in Western Europe exceeds the volume of sales in the U.S.A. itself. In perspective, there will be a furtherance of this tendency. The American oil companies are a clear example of international monopolies, controlled by financial capital from headquarters in the U.S.A. The dominating position in worldwide capitalist recovery, refining and sales of oil belongs to these companies. They control the activity of the majority of international oil cartels.

It is characteristic that the rise in production of foreign enterprises of the American super monopolies significantly leads the rise in production in the U.S.A. itself. Due to the effect of this tendency , the specific weight of foreign production in the total volume of production of the internatinal monopoly is rapidly increasing.

Over 1961-1966 the share of production outside the limits of the U.S.A. rose at "General Motors" from 4.5 to 22%, and at

"Ford" from 15 to 33% [33]. The "automotive big three" of the U.S.A. in the year 1972 controlled more than half of the worldwide production of automobiles, including over 50% in England and over 30% in the "common market" countries (including about 50% in the FRG). In England, for instance, three of the "big four" automobile companies belonged to the "big three" of the U.S.A. [34]. About 50% of all automobiles put out in Brazil, Columbia and Mexico are produced at enterprises belonging to American capital. /122

American electrical equipment companies have a broad network of foreign enterprises with a high volume of operations. The high demand for the products of these companies, both for production and consumer purposes has necessitated a rapid expansion of their operations far outside the borders of the U.S.A. Such large companies as "General Electric", "Westinghouse", "International Business Machines", "Radio Corporation of America", "National Cash Register" and others have major investments in foreign states and occupy important positions in the various branches of this highly specialized industry.

The superiority of the U.S.A. over its competitors in the establishment of scientific work and the production of many types of new equipment has had a great influence on expansion of the foreign activities of the electrical equipment companies. The shortage of work force in Western Europe over the course of a significant part of the postwar period promoted a high demand for highly automated equipment and monitoring instruments of various types. This stimulated an increase in export of the corresponding goods from the U.S.A. and to an even greater degree nudged the expansion of this production abroad.

"International Business Machines" whose share in the U.S.A. amounted to about 60% of the turnover in the industry, producing electronic computers, also occupies the dominating position in the world market for this equipment. The production of computers in the capitalist world is in essence a monopoly of the largest American companies. They control approximately 95% of the world production of computers, including the fact that approximately 80% of the Western European market belongs to them. The share of "International Business Machines" alone amounts to 80% of the world capitalist market and 70% of the market of the Western European countries.

An increase in the expansion of international monopolies of the U.S.A. on the foreign market is accompanied by activation of activities and an increase in the foreign networks of the largest American banking monopolies. These purchase banks and financial companies of foreign states and create their own departments abroad. Over 1960-1964 the "First National City Bank /123

of New York" increased the number of its divisions outside the country from 74 to 105. At the same time the "Chase Manhattan Bank" brought its number of branches from 20 to 29 [35]. At the beginning of 1966, American banks had 213 branches abroad, or twice as many as in 1960. Data on the activity of branches is usually not included in the accounts of the parent banks. Therefore it is difficult to fully reveal the scope of operations of the foreign branches and controlled banks. Relative to the "Chase Manhattan Bank", it is known that its overseas network encompasses 1200 points and its total sum of deposits amounts to nearly 2 billion dollars, which is equal to approximately 20% of the total sum of deposits of the "Chase Manhattan" Bank[36].

Together with foreign banks the American banks are creating large financial companies, which play an important role in the market of capitals in those countries where they operate.

In all the major branches of industry of the U.S.A., and also in commerce and in the credit banking business, monopolies have risen, whose activities are growing widely outside the frameworks of national borders. In 1961 460 firms of the 100 companies of the U.S.A. had their enterprises overseas. Now there are more than 750. In some of these monopolies operations inside the U.S.A., initially formerly the main ones, are now losing this significance. The increase in the volume of foreign operations in the largest American companies and their transformation into international monopolies is accompanied by a definite reorientation of the leadership of these countries. In the first stages of the foreign operations they were seen as a unique form of second-degree operations, to which the management of the companies related like to an additional source of profits, at times relatively significant ones. With this, domestic operations were seen as the basic and constant source of profits. As foreign operations grow, and as they occupy an ever increasing role in the total turnover of the company, the attention paid to them by the company management increases, and all /124
measures are taken so as to expand the activities of the company abroad and maximally increase the receipt of profits from foreign economic expansion. It is characteristic that in almost all the international monopolies of the U.S.A. the volume of foreign operations is increasing much more rapidly than their operations on the internal market are growing.

However, regardless of the expansion of the production base of American monopolies outside the limits of the U.S.A., the centers of financial control remain, naturally, in the U.S.A. They are retained there even in a case where some of the international monopolies, striving to mask this fact, are organizing their headquarters outside the limits of the United States. For

instance, a number of companies are registered in Canada as national Canadian ones, although it is known that in fact they are controlled from the U.S.A. These companies include, in particular, "International Nickel of Canada", which controls two thirds of the world production of nickel; "Alcan Aluminum" and other international monopolies which are controlled from the U.S.A., but are based in Canada.

The process of expansion in the U.S.A. of a circle of monopolies who have made the sphere of their activity the entire world, causes an increase in centralization of control. Concentration of decisions on basic questions in the end quarters of the parent company is determined not only by qualitative expansion of the operations of the American companies, but also by the necessity for coordination and cooperation of the activities of enterprises which are strewn across the entire capitalist world. Without centralization of control, cooperation on such broad international scales could not be achieved.

Centralization of control does not exclude definite independence of the controlled firms in decisions on questions connected with specifics of the local market. However, the principle questions of the activity of the controlled enterprises, in whatever corner of the globe they are located, is to an ever increasing degree concentrated in the hands of American companies, or, speaking more precisely, in the hands of a headquarters (the headquarters is not always located in the U.S.A., but can, for instance, be located in Canada or in any other country). Principal pecisions are made by the group of monopolistic capital of the U.S.A. which controls this company.

Centralization of the control of the activities of controlled enterprises finds its expression in centralized planning of production of their entire network, which is being increasingly developed during recent years. With this the largest firms are now accomplishing planning for 10-15 years ahead, so-called perspective planning. /125

The activities of the American super monopolies represent a considerable threat for the national sovereignty of those countries where the controlled enterprises hold sway. In essence it happens that questions relating to the activities of these countries are decided not by the powers of the country where these enterprises are located, but in the headquarters of the parent company. In this way, American businessmen decide what to produce, in what volume, where and for what price to sell, where to purchase raw materials and components, from where to draw a loan capital, etc. This leads to the following. The withdrawal of money from a country with a deficit balance of payments can lead to a sharp deterioration in its monetary position at a moment which is critical for this country. The shifting of purchases from the territory of one country to the territory

of another can have a negative effect on the export of that country where in accordance with directions of the headquarters these purchases are reduced or stopped. A reduction in production and closing of enterprises also has a disorganizing effect on the economy of a country where controlled enterprises are located.

In this case when the American company does not bring in capital, but places its valuable paper on the local market, this indicates removal of capital from the given country and its redistribution to the gain of the American company.

In headquarters of monopolies in the U.S.A. there are actually no representatives of the countries in which the international monopolies are acting. According to data of a special investigation, in the 150 largest companies of the U.S.A., only 1% of the management posts are occupied by persons who are not citizens of the U.S.A. [37].

International monopolies of other capitalist countries are for the time being lagging behind their American fellows. According to data of "Fortune" magazine, in 1965 of the 460 largest companies of the capitalist world with a turnover exceeding 250 million dollars, 60% were American. The turnover of the two largest private companies of the U.S.A. was almost equal to the /126
combined turnover of the 500 largest French companies; the turnover of the 19 largest American companies equalled the gross national product of England and the net profit of the four largest American companies is sufficient for financing all the budgetary expenditures of Belgium.

In the 6 major branches of industry -- the automotive, electronics, steel smelting, petroleum, chemical and rubber, the American companies are the largest, and also significantly lead their Western European and Japanese competitors in size. In electronics, the largest American company has a turnover which is three times larger than the largest Western European firm. In the automobile industry the relationship between the turnover of the largest American companies and the largest Western European ones is 10 : 1, while in the roller and steel industry it is 2 : 1. In the chemical industry, this gap is narrower, and the relationship between the combined turnover of the three largest American companies and three of their competitors is 1.4 : 1.

On the surface the American companies also have a superiority in the area of profits. In the electronics and radio industry the relationship is 3.2 : 1, in the automobile industry it is 24 : 1, in the chemical industry it is 2 : 1, in the steel smelting industry it is 11 : 1, and in the production of auto

paints -- 4 : 1.

The re tive power of the American companies by comparison with the Western Europeans and Japanese ones is not greater than it was before the first and second World World Wars. However the encouraging process of concentration by governments of the countries of Western Europe and Japan of the capital and production in these countries will lead strengthening of existing and the appearance of new international monopolies, which are beginning to put up more and more resistance against the monopolies of the U.S.A.

The international monopolies of the U.S.A. represent branches of industry with a higher concentration of capital then in other countries, and in particular in the countries of Western Europe. For instance, in the automotive industry, almost all production of automobiles is concentrated in the hands of three companies, while in Western Europe about 40 automobile companies are counted, and of them 15 to 20 are comparatively major producers.

The process of the outgrowth of national borders by the /127
American monopolies and their transformation into international monopolies in turn accelerates the processes of concentration of production in other industrially developed capitalist countries. This is especially graphically manifested in the "common market" countries, where during recent years American companies have significantly expanded their production and sales base. The process of integration of the Western European countries in itself caused acceleration of the process of concentration of capital and production in connection with elimination of the customs buyers inside the "block of six", geographic expansion of the markets and strengthening of competition inside the "sextet". Together with this the penetration of American companies, whose production volume and assets exceed the production volume and assets of the Western European companies by several times, intensify the processes of concentration in Western Europe. These processes are actively encouraged by the governments of the "common market" countries, which to please the requirements of the national bourgeois are increasingly actively attempting to weaken the negative effects of penetration of American capital into the economies of these countries.

The national bourgeois of France, the FRG and other countries of the EEC is without a doubt not establishing a perspective for losing control over their economies and transferring key industries into the hands of the U.S.A. supermonopolies, which have available to them tremendous resources of capital, superiority in the area of scientific and technical achievements, and the newest methods of "management" and "marketing". This is

why the large capital and governments of the Western European countries start from a position where one of the unchanging positions of competition with American companies is strengthening of the Western European enterprises, and bringing them inasmuch as possible into dimension with the American ones.

The growing role of export of capital and the process of the outgrowth of many of the U.S.A. monopolies into international monopolies necessitates strengthening of expansionism in the foreign economic policy of the U.S.A. These monopolies, having tremendous economic force available to them at the present time and having created controlled enterprises in all countries of the capitalist world, are interested in the free movement of capital and goods and in unrestricted transmittal of profits. Their goal, as is directly laid out in a report of the Rockefeller Foundation, which developed the "strategy of economic expansion /128
of the U.S.A. in the second half of the 20th century", consists of creating a "free market" within the frameworks of the whole capitalist world. They see the path to this in the general listing of limitations on the movement of capital and goods, monetary and other limitations, in expansion of the network of international credit and financial institutions and the combination in a single market of various customs unions.

The combination of capitalistic countries under the ages of the U.S.A., dictated by the interests of the most influential groups of American monopolistic capital, over the course of the entire postwar period is the basic strategic line of the foreign economic policies of the U.S.A. Achieving widespread integration of the capitalist world, the ruling circles of the U.S.A. hoped to hold this union under their control, using it for further development of American economic expansion, for strengthening the economic base of NATO and other proAmerican military blocks and in the final account, for strengthening of the internatinal economic and political positions of the U.S.A.

Even after the Second World War the U.S.A. laid the foundation for a world economic organization of the capitalist system. They achieved creation of the international bank for reconstruction and development and the international monetary fund. The appearance of the "common market" and the international monetary fund. The appearance of the "common market" -- a closed regional protective Western European group -- showed that integration of the capitalist world did not in all respects happen like the ruling circles of the U.S.A. would have decided. Together with the fact that nudging the union of Western Europe under the aegis of the U.S.A. and serving as a beginning for the organization of a wider "Atlantic community", creation of the "common market" strengthens the contradictions between the countries of the EEC

and the United States and made realization of the American plans for widespread integration of the entire capitalist world more difficult.

American Quantitative Prognosis for Foreign Economic Expansion

During recent years attempts are being undertaken in the U.S.A. to evaluate in quantitative indices the perpsectives and peculiarities of the development of foreign trade and foreign economic communications in conditions of the scientific and technical revolution. This is caused both by the overall development in the U.S.A. of long-term economic forecasting and by the special interests in foreign operations in connection with the increase in their role in the economy of the U.S.A., with sharpening competition on the world markets and worsening of the balance of payments of the U.S.A. Some of the largest American companies: "General Motors", "Ford" and "Dupont" have plans for foreign economic expansion which go 10 to 15 years ahead. /129

The most interesting are the following prognoses: of the U. S. Department of Commerce (Table 13) -- U.S. foreign trade. A five year outlook with recommendations for action; The National Association for Planning (NAP) -- "Economic forecast up to 1980", the research organization "Business International" -- the "the world market in 1985" and the Council of the National Industrial Conference -- "The economy of the U.S.A. in 1990".

The compilation of these American forecasts was dictated by the necessity for determining the basic tendencies in the balance of payments. Therefore, in them go the overall evaluation of export and import, including both commodity and non-commodity operations. The evaluation of export and import of goods is contained only in the forecast of the Department of Commerce and fear only up to the end of 1973.

The evaluation of the volume of export of the U.S.A. for 1973 by specialists of the Department of Commerce is given in three variations within limits of 43-46 billion dollars. The average evaluation of perspective import forecasted a rise in the U.S.A.'s import by 1973 of up to 44.8 billion dollars.

A balance of trade is laid in these evaluations which is within limits of -1.8 billion dollars to + 1.2 billion dollars. /130

However a government committee on export expansion is not satisfied by even the most optimistic of these outlooks and has established as a goal for 1973 an export in a volume of 50 billion dollars, or 4 billion dollars higher than the most optimistic evaluation. This task -- to achieve for the U.S.A. a

favorable balance of trade of 5.2 billion dollars by the end of 1973, was established as the basic goal in the five year program of the Department of Commerce for the development of export. The summaries for the development of foreign trade over a four year period (1969-1972) showed that the sober evaluations of experts proved to be more in accordance with actuality than the optimistic forecasts of the government committee on export expansion.

TABLE 13 FORECAST OF THE U.S. DEPARTMENT OF COMMERCE, BASED ON EVALUATIONS

	Of Producers	Of Exports on goods	Of Exports on countries	Set Acc. to export for 1973
Export for 1973	43.0	43.6	46.0	50.0
Import for 1973 (average evaluation). .	44.8	44.8	44.8	44.8
Possible balance of trade	-1.8	-1.2	+1.2	+5.2

SOURCE: "U. S. Department of Commerce. U.S. Foreign Trade. A Five Year Outlook with Recommendations for Action", Wash. 1969

The report of the NAP gives an evaluation of the combined national product and foreign operations over the period up to 1980 (Table 14). According to the evaluation of the NAP, the average annual rates of increase of the export of goods and services amounts to 7.7% and will lead the growth rate of the combined national product. The average annual rates of growth of the national product will amount to, it is supposed, 7% in the first five years of the 1970's and 6.6% in the second [38].

Compilers of the NAP report include various tendencies in the movement of export and import with respect to the national product in their evaluations. It is projected that the specific weight of the import of goods and services will be unchanged at a level of 5.6%, and the share of export will increase over the ten year period from 5.9% in 1969 to 6% in 1975 and 6.4% in 1980. It is apparent that this evaluation emanates from a position where the leading (by comparison with export) growth of import is stopped and the share of imports in the combined national product remains on the existing level. However, this projection contradicts the tendencies on the growth of import, observed in the past decade, when import increased more rapidly than export

and its share in the national product rose from 4.5% in 1964 to 5.7% in 1969.

TABLE 14 COMBINED NATIONAL PRODUCT AND INTERNAL OPERATIONS OF THE U.S.A. in 1950-1980 (in billions of dollars, at current prices) /131

	1950	1955	1960	1965	1966	1967	1968	1969	1973	1975	1978	1980
Combined National Product	284.8	398.0	503.7	684.9	749.9	793.5	865.7	932.3	1223.4	1398.4	1697.7	1935.0
Export of goods and services	13.8	19.8	27.2	39.2	43.4	46.2	50.4	55.4	72.8	84.6	106.2	123.5
Import of goods and services	12.0	17.8	23.2	32.3	38.1	41.0	48.1	53.3	67.5	77.6	94.8	108.4
Balance	1.8	2.0	4.0	6.9	5.3	5.2	2.5	2.1	5.3	7.1	11.3	15.1
Export of Capital (Net)	—2.2	—0.5	2.7	4.1	2.4	2.2	—0.3		2.2	3.5	6.6	9.5

SOURCES: National Planning Association "Center for Economic Projections. Economic Projections to 1980; Growth Patterns for the Coming Decade. Report N 70", March, 1970; "Federal Reserve Bulletin", Apr., 1970, p. 316.

In the perspective plan, reduction of the role of goods operations and an increase in the specific weight of non-goods operations is an important tendency in the development of the U.S.A.'s foreign economic expansion. According to evaluations of the Council of National Industrial Conference, the export of goods, amounting in 1970 to two thirds of the export of goods and services, will comprise not much over half by 1990 [39]. A similar reduction is also projected with respect to the share of goods imports in the overall import of goods and services--from two thirds to three fifths. At the basis of these tendencies lies primarily the entry of an increase in revenues from foreign investments. A rise is also foreseen in entries to the U.S.A. for utilization of the newest knowledge, patents, licenses for production of goods and American methods for control of production and methods for selling the goods. /132

In the U.S.A. it is also frequently foretold that the number of American workers occupied in the processing industry will steadily be reduced due to the effect of scientific and

technical progres -- to 30 million people (in the middle of the 1970's it is 100 million people) and that rich countries, like America, will be increasingly occupied in their business operations with the production of information and commerce in scientific and technical knowledge.

The tendencies, observed during recent years, of the growing rates of increase of the import of goods into the U.S.A.by comparison with their export gives basis for assuming that the U.S.A. is entering into a lengthy period of chronic trade balance deficits. For the first time in the entire 20th century, this deficit was settled in 1971, at the borderline of the 1960's and 1970's. Development is moving in the direction of conversion of the U.S.A. balance of payments structure into a balance of a "mature colonial" power, when the deficit in trade and other forms of expenditures are balanced through entries from foreign investments.

The ruling circles of the U.S.A., forcing entries from foreign investments in all ways, are at the same time striving in every way re-establish the favorable balance of trade in significant dimensions and stave off the onslaught of a period of chronic trade deficits. According to evaluations of the Conference Council, a deficit in the U.S.A.'s trade will take place from the middle of the 1980' but, if the measures taken do not achieve success, this can also occur much earlier.

Improvement of the Arsenal of Means for Foreign Economic Expansion

In conditions of a developed state-monopolistic capitalism, the American governmental prognosis take on a character of their own type of directive, determining on one hand the basic directions for the foreign economic policies of the U.S.A. and on the other, establishing definite missions for private firms. Thus, for bringing their prognosis into life for the coming ten year period the government of the U.S.A. has set forth the common task of increasing the specific weight of American export in the national product and has required that each branch of industry of the U.S.A. and each firm achieve an increase in the specific weight of shipments for export in their total turnover. Simultaneously a whole system of general economics, trade-political, currency-financial, tax and other measures are being developed in the U.S.A. for realization of this task. In particular, to increase the competition capability of the American goods on foreign markets, a great deal of meaning is being given to the course toward increasing government allocations for financing scientific and research work and transmitting the newest achievements to the private sector for increasing the export of new

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goods and technology from the U.S.A.

The American government organs and economists base their prognosis on the comparitively rapid growth of the export of new goods in the 1970's on the following conclusion. It is projected that the major structural changes, connected with an increase in the use of the newest equipment, assuring a savings in labor, will occur in the economies of the major trade partners of the U.S.A. It is presumed that the bountiful supply of working force, causing the rapid development in the economies of the "common market" countries, will be significantly reduced in the beginning decade and that the working force from agriculture and from the reserve army of labor -- the army of the unemployed -- will also be reduced. It is assumed that this tendency will lead to an increase in the demand for the newest equipment and, as a result, to an increase in export from the U.S.A., having superiority over its competitors in the production of these types of equipment. Simultaneously it is expected that changes in the labor market might lead to an increase in wages in the countries of Western Europe and to an increase in production expenditures, which might raise the competitive capacity of goods exported from the U.S.A.

In improving the arsenal of means for strengthening the foreign economic expansion in the 1970's the ruling circles of /134
the U.S.A. are counting on using the scientific and technical potential of the U.S.A. for this and forcing exports from the U.S.A. of goods, in whose production the newest technology is used: computers, jet airplanes, monitoring and measuring instruments, some types of organic chemicals and capital equipment. However, even projecting a significant increase in the export of goods, the U.S.. Department of Commerce and other organizations, forecasting development of foreign economic communications for the coming ten years, are forced to recognize that the share of the U.S.A. in the world export of the capitalistic countries will continue to be reduced due to the effect of sharpening of competition for the sales market, at least in the first half of the 1970's. According to a whole series of goods the competitive capacity of American export in the 1970's will also be reduced more rapidly than took place in the 1960's and earlier, due to the effect of an essential increase in competition. One of the factors in the weakening of the competitive capacity of the U.S.A. might be desemination of the newest technology among the entire capitalist world.

Already by the beginning of 1970's the rise in the favorable balance of trade of the U.S.A. in commerce of science-consuming goods have slowed down, and in commerce in these goods with Japan the U.S.A. even had an unfavorable balance. The overall favorable balance of trade in science-consuming goods

is now not covering the unfavorable balance which the U.S.A. has in the trade of goods from less science-consuming branches. As a result, in 1971, for the first time in the twentieth century, the U.S.A. showed a deficit trade balance in the amount of almost 2 billion dollars and in 1972 it was 6.4 billion dollars. In the second half of the decade, according to American forecasts, some improvement in the competitive capacity of American export is foreseen [40].

As one of the basic measures for forcing the export of goods the U.S.A. during coming years intends to use the new reduced rate of exchange for the dollar. While previously throughout the course of a quarter of a century the U.S.A. made her fortune at the high rate of exchange for the dollar, which allowed them to sell their goods at an additional profit, financed military and political expenditures abroad and acquire major foreign assets, now in conditions of unforeseen heightening of competition, the monopolistic circles of the U.S.A. are not stopping at giving away part of the cost of export without compensation for purposes of strengthening their position in foreign markets. Using the mechanism of state-monopolistic regulations, the losses from these operations are shifted to the workers. /135

The activity of government organizations of the U.S.A., accomplishing financing of goods exported is being activated. On the threshhold of the new decade, in 1971 the credit authorities of the state export-import bank of the U.S..A. were increased by 13.5 billion to 20 billion dollars. In the fiscal year 1969-70, through credits of the export-import bank and its guarantee in private credits, 5.5 billion dollars in U.S.A. export was financed, or almost twice as much as in fiscal year 1968/69.

Credits of the export-import bank have an especially great meaning for financing export of the newest types of airplanes.

The government of the U.S.A. is developing a system of tax advantages for exporters for the purpose of increasing the profitability of their export operations. Legislation recently passed in the congres of the U.S.A. contains a position of the freeing from taxes of profits received by American firms specializing in the export of goods from the U.S.A. According to this law, a company in which 95% of the assets are used in export activity and which has 95% of its monetary annual revenues from export or some activity connected with export, receives the special statute "Domestic International Sales Corporation", which is to say "National Export Corporation". The creation of "National Export Corporations" has the purpose through freedom from taxes, of raising the profitability of export operations

and forcing the export of goods manufactured in the U.S.A. Previously the only means for obtaining such tax advantages consisted of creation of controlled companies for production of goods outside the limits of the U.S.A. This law gives basis for encouraging internal production for export and specially stipulates that the "national export corporation" must be occupied with production activity abroad or invest its capital abroad. The exception is acknowledged only in those cases where its activity has the purpose of promoting the export of goods produced in the U.S.A. A "national export corporation" is allowed to have its own affiliated and subsidiary companies /136 outside the limits of the U.S.A. for sales of goods shipped from the U.S.A.

According to evaluations on hand, the gain of American corporations to which this statute will be applied, amounts to 450-600 million dollars during the first year alone and will allow them to increase export from the U.S.A. by 1.5-2.4 billion dollars.

A great meaning in the U.S.A. is given to an increase in the export of agricultural goods. 17% of the fruit, 33% of the cotton and corn, 42% of the tobacco and over 60% of the wheat and soybeans go for export. This testifies to the interests of the U.S.A. in foreign markets for agricultural production. These markets are acquiring special meaning now, when the favorable balance of trade in the U.S.A. has been replaced by an unfavorable one. For the purposes of increasing the positive balance in the trade of agricultural goods and improving the balance of payments the U.S.A. is demanding from other countries elimination of limitations on goods for agricultural export and using various measures of government stimulation, financing and subsidies for agricultural export. For the purposes of more flexible reaction to fluctuations of supply and demand on the world market of agricultural goods, the ruling circles of the U.S.A. have developed a system of state control over the export of these goods.

Changes in the Geographical Direction of Expansion

Intensification of trade and movement of capitals between industrially developed countries is a result of the scientific and technical revolution. Commerce with the newest goods and exchange of the newest scientific and technical information is acquiring an especially great meaning. Conditions exist in the industrially developed countries for creation of large-scale production capabilities, and for mass flow lines and automated lines. In this context, a further geographical concentration of American export is foretold, so that by the middle of the 1970's 50% of American export production will be directed

to five countries: Canada, Japan, England, Germany and France.

The 1960's were characterized by the reduction in the growth rates of U.S.A. trade with the developing countries. Representatives of American business considers that programs for industrialization of a developing country of Asia, Africa, and /137
Latin America will first of all promote an increase in the demand in these countries for industrial equipment and other goods, which the U.S.A. can ship. The economic "aid" of the U.S.A. to the developing countries in 1970's stopped at a level of 3.8 billion dollars, i.e. the same as in 1950, when the "Marshall Plan" was in effect. The specific weight of this "aid" in the gross national product of the U.S.A. was reduced over this period by 2.5 times, from 1% to 0.4%. The U.S.A.'s share in the total sum of "aid" and other entries of financial means to the developing countries from the capitalist developed countries is now under 50%. At the end of the 1950's it amounted to 60%.

During the coming ten years the ruling circles of the U.S.A. intend to place emphasis on forcing private investments of American monopolies in the developing countries. A program of "aid" to the developing countries is now foreseen from this angle of vision.

In the foreign policy messages of the president of the U.S.A. in 1970 it is emphasized that: "Private capital investments must play the central role in the process of development to whatever degree the developing countries themselves wish". The Nixon government is also announcing that it intends to mobilize in the U.S.A. abroad the "energy of private enterprise for the purpose of economic development". To increase investments of American companies in the developing countries, corporations of private capital investments abroad are being created in the U.S.A. Simultaneously, the Nixon government proposed to the leadership of the Agency for International Development to place the accent on granting "aid" to the private sector in the developing countries.

With the attraction of resources of private American capital, the untying of the initiatives of the private capital of a developing country and setting up of collaboration between them the government of the U.S.A. is counting on not only increasing penetration of the American monopolies into the economies of these countries and raising the profits of the monopolies, but also influencing the social development of the "third world" countries, directing them along a capitalist path.

In the message of President Nixon on foreign policy of the U.S.A., given to congress in February of 1971, it was emphasized: "We will actively encourage private investments in the developing countries of Africa...I have no doubt that private investments /138

will play a much larger role than aid along the line of government organizations, in accelerating their economic development." The former U.S. Secretary of Commerce, M. Stans, having returned from a trip through the countries of Latin America, announced: "In my opinion, about half the requirements of these countries in capital over the course of the next 25 years will be satisfied from foreign sources, chiefly from the U.S.A. and primarily from the foreign sector."

In this way, the export of private capital from the U.S.A., especially in the form of direct investments, is seen by the ruling circles of the U.S.A. in long-range perspectives as one of the most effective means for economic expansion of the monopolies of the U.S.A. and for influencing the economies and politics of the developing countries. It is apparent that the realization of these plans will depend to no small degree on the political situation and acuteness of the socio-economic contradictions in the "third world" countries. It should be emphasized that the developing countries, in particular a number of the countries of Latin America and the Arab governments are stiffening resistance to expansion of American private capital, are limiting its activities and accomplishing nationalization of enterprises belonging to foreign, including American, capital.

In the developing countries the monopolies of the U.S.A. during recent years have been forced to agree on participation in mixed companies even where the largest part of the activities remain in the hands of the government or the national capital of these countries. This testifies to the definite flexibility of the foreign economic policies of the U.S.A. monopolies.

It is apparent that in the 1970's the U.S.A. monopolies preferring, as previously, full control over the activities of the foreign enterprises (as took place in Canada and Western Europe), together with this will practice various forms and methods of economic expansion. A rise in national liberation movements in countries where American capital is operating can push the U.S.A. to further development of mixed enterprises. This conclusion was expressed as frankly as possible in an editorial article of the American magazine "Business Week" on 5 February 1972: "Participation in business can hold back expropriation better than any number of torpedo boats".

Together with this, it should be kept in mind that the insufficiency of capital in the developing countries and the significant dependencies of all capitalist countries on the U.S.A. of this source of newest scientific and technical information and technology can to one degree or another hold some of them back from taking decisive measures on limitation of the activities of American capital. Together with competition between the /139

exporters of capital, at the present time there is also on the surface competition between importers of capital for attracting foreign capital in large volumes, and for more rapid attainment of new technology. This situation frequently forces a country importing capital to agree to creation of a favorable investment climate and granting of various advantages to foreign, including American, capital.

Naturally, the fate of these tendencies will to a tremendous degree depend on how much in the 1970's the United States maintains its position as the basic financial, scientific and technical center of the capitalist world, and on the acuteness of competition between the exporters and importers of capital. In particular, the effectiveness of the actions of the main competitors of the U.S.A., who are also improving their arsenal of weapons of the struggle for spheres of application of capital, sales markets and sources of raw materials will have a great meaning. Whatever concrete forms their interrelationships with the U.S.A. take on, they will unavoidably be accompanied by new aggravations of the contradictions.

CHAPTER IV

NEW DIRECTIONS IN U.S.A. FOREIGN POLICY

Over the past decade the development of the scientific and /140
technical revolution has promoted the appearance of a whole series of new directions in practical activity, connected with the utilization of atomic energy, the study and mastery of outer space, and also the appearance of principally new possibilities in such seemingly traditional spheres as utilization of the spaces and resources of the world's oceans, and increase in the productivity of agricultural production and others. The approach of governments to utilization of scientific and technical achievements, both for the purpose of developing their national economies, and for solving national problems, has also changed essentially during the last ten years. The deepening of the international character of scientific and technical activity has reached a stage where the scientific and technical communications have been transformed into one of the most important elements in the general complex of international relations.

These changes can be traced with special clarity with the example of the U.S.A., in the policies of which the scientific and technical revolution is increasingly broadly used as an instrument for solving military, economic, and political problems facing both the American government and the entire capitalist system as a whole. Changes in American foreign political strategy were reflected both in the mutual relationships of the U.S.A. with the capitalist governments and countries of the "third world", and on their policies with respect to the socialist countries. In this context the question of what kinds of traces and tendencies are characteristic for American policies /141
in the new conditions is justifiably rising.

The most important element of the "new technological politics" of the U.S.A. with respect to countries of developed capitalism is the striving to maintain and strengthen their leading positions in the area of atomic power production and the mastery of space, in the manner of all-out utilization of the spaces and resources of the world's oceans and others. With this the U.S.A. rests not only on its developed scientific, technical and economic potential, but also broadly uses the resources of its competitors, attracting scientific personnel, information, apparatus, equipment and also financial means from other capitalistic countries. Attempts to expand and facilitate possibilities for such utilization today comprise one of the major basis in the approach of the U.S.A. to development of international scientific and technical collaboration.

The activities of the U.S.A. in international organization, examining questions of international scientific and technical collaboration and political-legal problems in regulating the activity of governments in the area of mastering space, the world's oceans, peaceful use of atomic energy and others, is also directed at the achievement of these goals.

New methods and forms for use of the achievements of the scientific and technical revolution as an instrument of foreign policy have also found their reflection in the interrelationships of the U.S.A. and the governments of the "third world". At the present time, when the lack of agreement between the interests of the developing countries and the expansionist plans of American imperialism have appeared with special distictness and it is becoming increasingly more difficult for it to assert its political influence, the ruling circles of the U.S.A. are forced to seek new paths toward accomplishment of the neocolonialist policy and use new instruments for "expansion of its influence and power" in interrelationships with the countries of Asia, Africa and Latin America. A special role in this context is given to political and economic penetration into these countries behind a mask of a program of scientific and technical assistance. It is important, however to emphasize that regardless of the facts that "aid" is rendered on a bilateral basis or under the flag of an international organization, its essence boils down to keeping these countries within the framework of the world capitalist system.

This policy is also distinctly traced in the questions of /142
using the achievements of the "green revolution", in programs of "assistance" to certain countries in expansion of production of grain and in "aid" to them in mastering the resources of the world oceans in the areas of their territorial sovereignty, and in realization through the use of communications satellites of "general education" programs, under whose flag discussed ideological persuasion of the populations of the developing countries is conducted.

Earlier (see Chapter I), the discussion concerned those new moments, which in conditions of the scientific and technical revolution were noted in the policies of the U.S.A. with respect to the U.S.S.R. and other socialist countries and on the struggle going on around these moments in the ruling circles of the United States.

A brief review of the tendencies appearing in recent years in American foreign policy, connected development of some new directions in the scientific and technical revolution, predetermines the importance of all-round analysis of the strategies of the U.S.A. in solving actual scientific and technical problems of contemporaneity, which already today are affecting the vital in-

interests of practically all the governments of the world.

The Role of Government Mechanism in Utilization of Scientific and Technical Potential for Foreign Policy Goals

The peculiarity of modern capitalism, as was already noted, is to a significant degree explained by the fact that it adapts itself to the new situation in the world. The American monopolies are striving to widely utilize scientific and technical potential for strengthening their positions in the international arena. New forms of using the achievements of modern science and engineering in American foreign policy are called the "new technological politics" in the U.S.A. The "new technological politics" is a multifaceted phenomenon and is effected along many directions, although with different intensity. In it are on surface, both elements of clearly expressed expansionism, and a striving to become adapted to the international situation of the 70's and consider a number of realities at whose basis lies the power relationship in the world arena, changing in favor socialism.

The striving of the American government put the achievements of scientific and technical progress to work for the foreign policy of the U.S.A. is not anything completely new. Such attempts were also actively undertaken in the 1950's and 60's. Today, in totalling up efforts by various governments of the U.S.A. according to use of their scientific and technical potential for foreign policy goals, the American strategists are forced to affirm that the old American programs for using scientific and technical achievements in foreign policy goals proved to be "primitive and unrefined"[1]. As a result, calls began to be sent to the government to find new ways and capabilities, through the use of which American capitalism could use the scientific and technical revolution for foreign political goals. As only one of the examples of these moods, we present the words of a former special assistant to the president of the United States on questions of science and technology, D. Kistyakovsky: "The new phenomenon today is the rapidity with which the development of science changes the living conditions of a man, and the rapidity at which politics especially foreign politics, must adapt itself to these phenomena caused by the rates of development of science. And it is not enough to adapt oneself -- politics must be ready for this, must foresee the consequences of scientific discoveries and must to some degree attempt to direct them" [2]. /143

With the coming to power of the government of R. Nixon, many positions of the American foreign political conceptions, interpreting the meaning of and the necessity for using the fruits of scientific and technical progress in the foreign political strategy of the U.S.A. moved from the sphere of theory over into the

sphere of state policy. In essence the many-planned state conception of the "new technological politics" was strengthened in the U.S.A., supporting its authority of executive and legislative power. The president, the State Department and the Congress of the United States formulated the goals of this policy and expended considerable efforts in improving the state mechanism which was called upon to effect it.

In the foreign policy messages of 1972 and 1973 by the president of the U.S.A. to Congress, problems of the "new technological politics" occupied a noticeable place. Nixon directly connects the scientific and technical revolution with "new aspects of diplomacy". The leaders of the Department of State also spoke out from these positions. Thus, the Secretary of State of the U.S.A. William Rodgers announced in February of 1971 that the government of the U.S.A. will conduct American foreign policy in accordance with the achievements of science and engineering on a global scale [3]. According to Rodgers' testimony, American policy, making use of the advantages of science and engineering, has the following general goals: 44

1. The U.S.A. is striving to develop international collaboration on use of the fruits of scientific and technical progress.

2. The U.S.A. is increasing reliance on utilization of science and engineering in their "aid" to developing countries.

3. The U.S.A. is supporting efforts by governments which are directed at conservation of the international ecological environment [4].

The government system of development and accomplishment of the "technological politics" travelled a long and complex path of development. Thus, in 1946 the government Commission on Atomic Energy was formed. In turn, a combined commission of atomic energy was formed in the Congress of the U.S.A. These commissions played a major role in the formulation of American policy in the area of atomic energy, nuclear weapons and financing of scientific-research and test-design work in these areas. The combined commission of atomic energy of the Congress of the U.S.A., for instance, actively participated in development of the proposals set forth by D. Eisenhower which is known as the "atoms for peace" project.

In 1958 the National Science Foundation was created in the U.S.A., and its task included evaluation of the government scientific and research programs and determination of the basic course in the development of American science. The NSF plays a very major role in determination of the most feasible direction in utilization by the U.S.A. of its scientific and technical potential for foreign policy goals.

The successes of the Soviet Union in space research and the launching of the first Soviet artifical earth satellite brought requirements to life in the U.S.A. to undertake additional efforts to accelerate utilization of the fruits of scientific and technical progress for foreign policy goals. To these ends, the state mechanism also continued to be improved.

On February 6, 1958, a special committee on space and /145
astronautics was established in the American Senate, and on March 5 of the same year an organ with similar functions was created in the House of Representatives -- the committee on astronautics and space research. Together with the committees on foreign affairs of the Senate and House of Representatives, these newly created committees began to rapidly develop various programs for the "peaceful utilization of space". On 29 June 1958 the Congress of the United States approved a bill where the basic directions of American policy in space research were defined and a special administration was created -- NASA. With this section 205 of this law provided that this "administration under the overall political supervision of the president of the United States can participate in programs of national collaboration in accordance with the executive agreements of the president and with the approval of the senate" 5. The system of corresponding organs in Congress was significantly developed. At the present time, according to official American data, both in the Senate and in the House of Representatives of the Congress of the United States there are eight permanent committees which to some degree or another occupied with problems of science and scientific and technical progress, deciding which policy to conduct in the areas and to which of them to give priority. In the Senate these are the committee on Aeronautics and Space Research, created in January of 1959, and also the Committee on Allocations, the Armed Forces Committee, the Trade Committee, the Foreign Affairs Committee, the Committee on Government Operation and the Committee on Domestic and Maritime Affairs. A similar picture is also observed in the House of Representatives.

At the end of the 1950's, the post of presidential advisor on questions of science was established for the purpose of improving evaluation and coordination of the programs of scientific research and development in the U.S.A. In 1962 the president's directorate on science and engineering was created, and some of the powers of the National Science Foundation was given over to it.

One of the first acts of the Nixon government was creation of the new directorate on policy in the area of telecommunications, for which has been set the goal of modernizing the entire system of government communications in the U.S.A., and also sys- /146
tems of communications which operate through private companies.

The directorate on questions of science and engineering established close ties with the military departments and the intelligence services of the United States. It was to a significant degree involved in the planning of new weapons systems, provided integration of military, intelligence and foreign policy, considering with this the state of development of modern science and engineering. The directorate on policy in the area of telecommunications also played a major role in the development of new communications systems, especially military ones. With the participation of this directorate, a system of military communications was modernized in 1971, and allowed the president and the military commanders of the U.S.A. to communicate through communications satellites with military units, bases and naval vessels of the U.S.A., strewn in various parts of the globe. For development and participation in evaluation of complex foreign political problems, the directorate on questions of science and engineering involved a significant number of scientific institutions and representatives of academic circles.

In the State Department an apparatus on questions of scientific and engineering policy is also being gradually put together. In 1946 the post of special assistant to the Secretary of State on Atomic Energy was created there. In actuality his functions were significantly broader, and this activity promoted formation in 1961 of the Department of Science Advisor. During the course of reorganization, accomplished in 1962 upon the initiative of the leaders of the chief of the directorate on questions of science and engineering, Jerome Wisner, a merging of the Department of Space Research and Atomic Energy and the Department on Science was affected in the State Department. In 1969 the status of the new scientific and technical section of the Department of State was raised, and it began to be called the Directorate of International Scientific and Technical Problems. At the present time there are four departments in it: the Department of General Science Problems, Space and Naval Science Problems, Atomic Energy and the Environment. The chief of the Department on Problems of the Environment has a simultaneous status as special assistant to the Secretary of State. The Secretary of State himself is the Chairman of the interdepartmental committee on Coordination of American International Policy of Problems of the Environment. /147
In December of 1970 the duty of Coordinator of Oceanic Questions was established in the State Department.

It should be noted that at the present time special subunits conducting American scientific and technical policy are present in all the main ministries and departments of the U.S.A. In the Department of Defense, for instance, a whole number of these subunits can be counted. In turn, all of them are directly connected with the largest American scientific and research centers.

In 1973, some measures were effected on reorganization of the higher links in the apparatus for development of policy in the area of science and engineering. In January of 1973, President Nixon made the decision to give to the Director of the NSF all the functions which had previously been performed by the Directorate on Science and Engineering, and it was decided to abolish the latter. However, with this, preservation of direct communications between the White House and the NSF was provided, since the director of the latter became the presidential advisor on questions of science and his duties include consultation with the White House, the administrative and budge directorate, the Council on Domestic Affairs, and other organizations which are composite parts of the presidential apparatus. These consultations were done with respect to questions requiring scientific and technical expertise. The director of the NSF in his duty as presidential advisor on questions of science speaks as a representative of the president in the most important programs provided by international scientific collaboration. He, in particular, is a co-chairman in such organizations as the Joint Soviet-American Committee on Scientific and Technical Collaboration.

This reorganization, in particular, reflected, on one hand the striving of the government of the U.S.A. to raise the overall effectiveness of the activity of the organs of the federal government with respect to utilization of American scientific and technical potential for foreign policy goals through some decentralization of control and a less diffused and clumsy state with respect to the President of the United States. On the other hand, it testifies not only to the constant search in the 1970's for a government level of new forms of control of scientific and technical aspects of policy, including in the foreign policy /148
sphere but also speaks of the great complexities in creating an "optimal variation" of control of these processes in conditions of state-monopolistic capitalism.

At the beginning of the 1970's major changes were made in the system of organs effecting the "technological politics" of the U.S.A. with respect to the developing states. In a message to Congress on 15 September 1970, President Nixon proposed creation of the Institute for International Development (IID), whose goal would be "utilization of the scientific and technical achievements of the U.S.A. for solving the problems of the developing countries". In October of the same year a special committee was created in the National Academy of Sciences for preparation of a developed report on the character, roles and structure of the IID.

In his message to Congress on 21 April 1971 President Nixon clarified the position of the future institute in the structure of the American foreign policy mechanism. The directorate of

International Development in the Department of State was subject to liquidation. Instead of it, the creation of two organizations was foreseen: the Institute for International Development and the Corporation for International Development (CID). It is characteristic that exclusively problems of scientific and technical collaboration are entrusted to the IID. Old "classical" forms of "aid" were given over to be conducted by the corporation.

The Institute for International Development must conduct an all-round analysis of the operations of the U.S.A. in the developing countries, taking into account a whole complex set of economic, technical, political and social factors. As a rule, the effectiveness of the theoretic recommendations worked out will then be checked with an example of one or several developing countries. In this way, one of the basic tasks before the IID is development on the base of complex analysis of ways to "solve the problems" of a developing country. The Institute for International Development is seen as a permanent federal organ.

Widespread collaboration between the IID and foreign and international organizations is projected, primarily with departments of the United Nations which are occupied with questions of aid to the developing countries. It is planned that the institute will take into its hands the training in the developing countries of scientific, technical and administrative management cadres. /149 The presence of such cadres is seen in Washington as a necessary preliminary condition for accomplishment of new scientific and technical programs in the developing countries[6].

Therefore, on the surface it is one more attempt at improving the government mechanism of the U.S.A. for the purpose of strengthening the influence of Washington in the processes which are occurring in the developing countries and to assure their development along the capitalistic path. This time an extremely high stake is placed on exploitation of the newest results of the scientific and technical revolution, and in particular on utilization of modern methods of management theory. The striving to attain their goals with minimum financial expenses and with a reduction in the total volume of "aid" to the developing countries is also characteristic.

The scientific and technical revolution became, therefore, a catalyst on the most very types of new tendencies in the foreign political strategy of the U.S.A.

The Character, Forms and Directions of the U.S.A. Scientific and Technical Communications

An international character has always been inherent in science due to the internal conformities in its development, but it acquired special meaning in the area of the scientific and technical revolution. This is directly connected with the fact that the role of science as a social productive force, increasingly actively affecting the course of socio-economic processes, has increased immeasurably; the interests of all governments has also risen accordingly in acceleration of rates of scientific and technical progress, one of the important levers of which is international scientific exchange and collaboration.

Simultaneously the United States was forced to consider the objective necessity for further deepening of the international division of labor in the sphere of science and engineering in connection with the appearance of complex problems of global scale, such as peaceful research and mastery of space, the oceans, forecasting weather, the struggle against pollution of the atmosphere and health protection. For solving these and other problems international cooperation is needed not only among the small and medium-sized countries, possessing limited economic, scientific and technical capabilities, but also with the United States itself. Regardless of the fact that this most powerful capital- /150
ist country concentrates a significant part of the world scientific resources, it is also becoming increasingly difficult for it to conduct research work along the entire front of movement of science and engineering, not turning to cooperation with other governments.

The U.S.A. can also not help but consider the situation that the socialist countries are not only strengthening their collaboration in science and engineering, as they are in all other spheres, improving the division of labor among the world system of socialism, but also actively seeking and finding new capabilities for development of optimal scientific and technical contacts with all countries regardless of their social structure. The impressing example of mutually advantageous collaboration of the U.S.S.R. in economic, scientific and technical areas with such countries as France, Italy, Japan or the FRG, cannot remain unnoticed in the U.S.A. It is surprising that the theme of internatinal scientific and technical collaboration, including that with socialist countries, is increasingly frequently heard in foreign policy documents of the U.S.A. government and is becoming an increasingly important goal in its practical activity.

The U.S.A.'s relations with the capitalist competitors, and firstly with the governments of Western Europe and Japan, are occupying an exclusively important place in their "technological politics".

It is possible to separate several basic forms of effecting the scientific and technical policy of the U.S.A. on the international arena in their political and economic plan. These are primarily: 1) Competition or emulation; 2) Collaboration or cooperation; and 3) Scientific and technical "aid" to other countries, especially the developing ones. Naturally, this division has an arbitrary character, although it allows the main and contradictory aspects of the foreign scientific and technical policy of the U.S.A. to be grasped. Concerning the legal forms of these communications, they boil down primarily to multilateral or bilateral agreements and contracts, concluded both by the government of the U.S.A. and by separate American private organizations or scientific societies.

On the governmental levels the U.S.A. participates in more than 30 international and regional organizations which conducts significant programs in the area of science and engineering, for instance, in UNESCO, the world meteorological organization, /151 the World Health Organization and the Organization for Economic Cooperation and Development.

Besides this, the U.S.A. belongs to 30 nongovernmental international scientific organizations along the lines of the National Academy of Sciences--formally private, but in fact, a semigovernmental society, on which Congress placed responsibility for development of foreign scientific communications in the area of natural sciences (for the accomplishment of this mission there is a secretariat for foreign affairs in its composition). The U.S.A. participates through this National Academy of Sciences in such important international programs as the International Hydrological Decade (1965-1974), the International Decade of World Ocean Research (1970-1980), and the International Biological Decade. In the area of communications along the line of social sciences the American Council of Cognitive Societies plays a similar role.

As was already noted above, financing of participation of the U.S.A. in these and other programs was accomplished primarily by the National Science Foundation (NSF). It also subsidizes bilateral scientific agreements, preparation of American scientific cadres in other countries, the development of scientific information activities and gives out subsidies to some foreign institutes. The expenditures of the NSF on the development of foreign scientific communications increased from 50 million dollars in 1970 to 114.3 million dollars in 1972, which is to say that it doubled in two years [7] (according to approximate data, in 1973 it remains on the same approximate level of the preceding year)[8]. The share of expenditures for these goals in the total budget of the NSF in 1970 amounted to 11%, and in 1972 it was 18% [9].

It is characteristic that in the international project financed by the NSF a large number of American organizations, both government and private, participate. For instance, in programs of the International Decade of World Ocean Research to which 15 million dollars was given from the NSF budget in 1971, and 20 million dollars in 1972, 40% of the work on the U.S.A.'s side was accomplished by various governmental departments, and 60% was accomplished by universities, scientific and research institutes and industrial corporations [10].

Under the influence of worldwide scientific and technical progress the U.S.A. is involved in new forms of international collaboration. Thus, while up to 1960 they did not have bilateral specialized scientific and technical agreements, by 1973 more than 10 of these can already be counted. The first such agreement was concluded with Japan in 1961. Collaboration was foreseen between American and Japanese scientists in biomedicine, chemistry, physics, mathematics and other sciences. Over 10 years over 162 combined research products have been accomplished and 189 seminars have been conducted with particpation of 3500 scientists [10]. /152

The federal government also concluded bilateral agreements on scientific and technical questions with France, Italy, Austria, India, Spain and some other countries. In addition to this, the U.S.A. Academy of Sciences has such agreements with scientific establishments of 20 countries [11].

One more form of the scientific and technical communications between the U.S.A. and other countries is contracts and subsidies for research and development, located abroad by federal ministries and departments, private industrial corporations, and also philanthropic foundations.

The total volume of federal orders, placed abroad, has not revealed a tendency toward increase and amounts to only 0.3-0.5 % of all allocations of the federal government on research and development. For instance, at current prices it was equal to 76 million dollars in 1967, 40 million dollars in 1970 and again 76 million dollars in 1972, although from 1967 through 1972 the dollars invested in the sphere of science was devalued by 20-25%.

The U.S.A. is accomplishing communications with scientific and research organizations of 50 countries through the system of orders and subsidies.

The various types of scientific and technical communications between the U.S.A. and other countries also exists along the line of private capital, and its volume it significantly leads communications along government channels. This primarily relates to

creation by American coprorations and private scientific establishments of their own foreign scientific and research affiliates and loans for work of local specialists in them. While in 1961 of the 1000 leading American companies 460 had their own foreign production and scientific affiliates, by the end of the 1960's over 750 companies had these. The American worldwide monopolies /153 in the newest branches of science, engineering and industry were distinguished by special activity.

The education and re-education in the United States of foreign students and specialists, especially from the developing countries (135,000 people in 1970) has no small meaning for the development of the international relations of the U.S.A. in the area of science and engineering. Graduate students and scientific workers coming to the U.S.A. take a noticeable part in American scientific and research programs. It is not without interest that over 15% of all scientific degrees in the U.S.A. are conferred on foreigners. If the more than 10,000 foreign scientific workers arriving annually at American universities and colleges to increase their qualifications, 74% work in biology, medicine, chemistry, physics and other natural and technical sciences, and 26% work in the humanitarian sciences. It is impossible not to notice that a significant number of foreign students stayed to work in the U.S.A. after completing their education. This is one of the forms of the "brain drain" from which the developing countries suffer to the greatest degree with their still weak scientific and technical potential.

In expanding the forms of scientific and technical communications with other countries, the ruling cirlces of the U.S.A. cannot, however, fail also to consider the increase in objective requirements for internationalization of scientific and technical progress in the modern world, dictating strengthening of scientific ties between governments both with the same, and with different social structures.

The objective requirements of worldwide scientific and technical progress require organization of relations among all countries on equal beginnings, and on cooperation based on mutually advantageous utilization of the scientific store which is each of the countries, large or small, bring into development of worldwide science and engineering. These are the very positions which are strictly espoused by the Soviet Union and other countries of the world socialist system.

The CPSU and the Soviet government in their relations with countries of capitalism emanate from a position approved by the Moscow Conference of Communist and Worker Parties in 1969, to the effect that "the protection of peace is inseparably tied with the struggle to bind to the imperialist peaceful coexistence

of governments with various social structures" [12]. This thesis, corresponding fully to leninist ideas on the necessity for peaceful coexistence of governments, regardless of their social structure, found its concrete expression in the Program of Peace, adopted by the 24th CPSU Congress. /154

In a series of measures conducted in this direction by the Soviet government after the 24th party Congress, a visible place is occupied by treaties and agreements achieved with the government of the U.S.A., including in the scientific and technical area, which in their combination signify the beginning of a turnaround in the relations between both governments from the "cold war" period to an era of peaceful coexistence or the development of broad business communications. The setting up and expansion of scientific and technical collaboration between the U.S.S.R. and the U.S.A. is occurring on no other base than equality, mutual gain and reciprocity, with provision of identical possibilities for both countries to become familiar with the achievements of the other country.

"The Soviet Union and the United States -- powers who have reached the leading borders in the development of science and engineering, possess the greatest economic potentials and rich natural resources", said Chairman of the Presidium of the U.S.S.R. Supreme Soviet N. V. Podgorniy in one of the speeches upon the occasion of the visit of Richard Nixon to the Soviet Union in May of 1972, "Our people made a considerable deposit in the treasure house of world culture. All this serves as a sold material foundation, which in the presence of mutual agreement will allow the setting up of Soviet-American collaboration in the most varied areas, and achievement of realization of large-scale projects, reaching the level on which the Soviet Union and U.S.A. are located in the modern world" [13].

The ideas that utilization of the achievements of world science and engineering, like other progressing forms and capabilities of the international division of labor, are an imporant condition for progress in our time, received new development in the results of the visit of General Secretary of the CC CPSU L. Brezhnev to the U.S.A. in June of 1973. Thus, for instance, speaking at a meeting with representatives of American business circles on 22 June 1973 and talking about new forms and ways of developing collaboration between the U.S.S.R. and U.S.A., L. I. Brezhnev emphasized that the "old forms of economic relations no longer correspond to the requirements of time. The economies of some countries have taken on new scales. The scientific and technical revolution, whose moving force is the great achievements of human genius and labor, is moving at full speed. The development of culture and education have achieved great successes. This steady progress engenders a tremendous growth in requirements and demand of people and requires an increasingly broad international division of labor and the development of trade, economic, scientific- /155

technical and cultural communications between governments".

"The U.S.S.R. and the U.S.A. are the countries with the greatest economic potentials", said L. I. Brezhnev further, "We possess tremendous natural wealth. We honestly recognize that in some things you, the Americans, are moving ahead. But in some things we are outrunning you. And if we combine our efforts and turn to the question of broad large-scale ideas in the form of long-term, perhaps 20 year perspective, then it could be assured that tremendous possibilities will be opened.

I think that they exist in practically all spheres and in all branches -- in some less, in some more, but these possibilities without a doubt, exist" [14].

A series of Soviet-American agreements on questions of scientific and technical collaboration without a doubt promoted strengthening of the base of peaceful coexistence. (For more detail on this see Chapter V).

The Space Program in the Foreign Policy Strategy of the U.S.A.

Throughout the course of the history of its development, from the moment on 1 February 1958 when the first American satellite "Explorer - I" was launched, the activity in study and mastery of space serves in the hands of Washington as a means for solving a whole complex of political, military, economic, ideological and other problems which represent one of the important directions in modern American foreign political strategy.

The history of development of the national space program of the U.S.A. shows that this direction of scientific and technical activity of an imperialist government was developed due to the action of complex processes inside the country and on the international arena. The U.S.A. has not stopped the struggle between the various political groupings and monopolistic groups inside /156
the country on the basic problems of developing the space program.

The difficulties with which the state-monopolistic capitalism of the U.S.A. collide, showed a direct effect on the development of the national space program. This lead to some reduction in the overall volume of the space program with the moving into the stage of completion of the "Apollo" project, and also became a reason for re-examining the approach of the political leadership of the U.S.A. to collaboration with the Soviet Union, which after the Moscow Summit Talks moved into a new phase of mutually profitable relations, allowing duplication of efforts to be avoided in a number of branches of development and practical utilization

of space technology.

The space program of the U.S.A. represents a complex of measures, accomplished under the control of the government and having the purpose of performing scientific experiments in space, on the surface of the moon and other planets, and also solving a number of applied problems using automatic space apparatuses and piloted ships. Naturally, the value of the U.S.A. space program moves outside the framework of solving purely practical problems. Depending on the actual achievements within the frameworks of the national space program and the overall economic position of the government, the domestic political and foreign political situation in the U.S.A., the role and place of space research is being continually refined in the overall system of measures which make up the policy of one group or another which is located in power.

While President Eisenhower, under whose leadership the conduct of the first measures in the frameworks of the national space program of the U.S.A. began, assessed it first of all as a means for achieving military and strategic goals, President Kennedy set forth a broader conception. For him, the space program, as American researchers acknowledge, was "an instrument of American foreign policy and a new means for strengthening the role of the U.S.A. as a world power" [15]. At the beginning of the 1960's space research in the U.S.A. was placed at an extremely high rank in political priorities.

The decision of President Kennedy on the new direction for /157
U.S.A. national space program was made with consideration for the following factors: the necessity for changing the unfavorable reaction of public opinion in connection with the fact that the U.S.A. lagged behind the Soviet Union in first place in piloted space flights; the necessity to strengthen the shaky authority of the U.S.A. in other capitalist and developing governments; a striving to expand the possibilities for using space for military purposes; a striving to use the achievements of space research for the development of science and improvement of the scientific and technical potential of the U.S.A.; and the necessity for considering the effect of the goals and missions of this program on determination of the sizes of total and annual allocations from the federal budget.

At the beginning of the 1970's the Nixon administration was faced with the necessity for re-examining the national space program of the U.S.A. in connection with entry into the state of completion of the "Apollo" project, which was proclaimed by President Kennedy as the "main effort" of the U.S.A. space program in the 1960's. It is important, however, to emphasize that completion of this project is not in any way the only reason for the

next reorientation of the U.S.A.'s space program. The essence consists of the fact that the national space program began to be seen in tighter interconnection with the overall plans for improvement of the scientific and technical potential of the U.S.A.

Nixon's announcement that the space program of the U.S.A. in the 1970's will not be built around a single project, as it was in the 1960's, but will represent a "balanced effort", undertaken with consideration of a whole number of new problems, arising before the U.S.A. and requiring major budgetary allocations for their solution, should be evaluated from this very point of view.

In connection with this one of the basic requirements for the national space program of the U.S.A., formulated by President Nixon, consists of "directing in the briefest possible periods the present technology and experience obtained during the course of realization of space projects towards solution of practical problems" [16].

At the beginning of the 1970's new directions in development of the national space program were determined, which corresponded to its changing major functional problems after completion of the "Apollo" project. Differing from the 1960's, the space program of the U.S.A. will be built not around a single major project (as the "Apollo" project was), but will be developed along several more or less equal directions (See Table 15). /158

A judgement of the major scientific and technical projects including space ones, both on the level of the firm, and in Congress and in the government during recent years increasingly frequently includes evaluation of the role and place of the given product in the process of improving the scientific and technical potential of the government. Thus, for instance, in studying a project for a transport space ship for repeated use was shown in the Committee on Science and Astronautics of the House of Representatives that "although widespread differences in points of view exist concerning the price of various national goals in the system of priorities, almost all arrive at the opinion that national security, increasing the vitality of the economy and improving the quality of life are extremely real and deserving of great attention ..." [17].

In this way, the overall complex of goals, for the achievement of which the space program of the U.S.A. is used, remains unchanged, there are essential shifts in the approach toward realization of concrete directions of the work. Not ceasing efforts in improvement of military potential, and primarily strategic

nuclear missile weapons, the U.S.A. is allocating an increasing amount of attention towards strengthening of their actual positions in the world markets and toward economic competition between the two system. In the context of the changing approach, it is also apparently necessary to see that at the beginning of the 1970's the U.S.A., considering the significant successes of the Soviet Union, who realized a planned and multi-planned program of research and utilization of space, the moon and planets, took a number of practical steps towards setting up a mutually advantageous collaboration with the Soviet Union on concrete problems of astronautics.

TABLE 15 BASIC DIRECTIONS IN THE NATIONAL SPACE PROGRAM OF THE U.S.A. IN THE 1970's /159

Basic Types of Activity	Basic Goals
Piloted Space Flights	Utilization of the technical potential created in the frameworks of the "Apollo" project for long flights on board the orbital laboratory on an orbit near the earth, for realization of a project together with the Soviet Union ("Apollo"-"Soyuz"), and also for creating a new space transport system, which will provide significantly greater possibilities for the conduct of space experiments in the future with significantly lower costs.
Space Sciences	Development of automatic space apparatuses for investigation of the earth, the atmosphere, the moon, the sun, the planets, the stars and interplanetary space.
Practical Application of Space Equipment	Continuation of scientific research work for the purpose of more widespread usage of space equipment for solving practical problems: weather and climate observations, determining the degree of pollution of the environment, exploration of natural resources, investigation of the continents and world ocean, and communications and handling of data received from space.

(Table 15 continued on page 139)

TABLE 15 (Continued)

BASIC DIRECTIONS IN THE NATIONAL SPACE PROGRAM OF THE U.S.A. IN THE 1970's

Basic Types of Activity	Basic Goals
Creation of New Aviation and Space Equipment	Continuation of the all-out activity in the area of fundamental sciences, and also on expansion of the technical base for further development of aviation and astronautics.
Tracking and Analysis of Information	Continuation of activity on a planetary scale with respect to earth support of piloted flights and experiments with automatic space apparatuses.
Use of Equipment	Provision of broad access to science, engineering and project information for the purpose of using the potential of NASA as intensively as possible for solving various practical problems.

SOURCE: "HYD - Space - Science - Veterans Appropriations for 1974. Hearings before the Subcommittee of the Committee on Appropriations House of Representatives, 93-d Cong., 1st Sess.", Wash., 1973, p. 639

As is known, due to the effect of a set of consequences of the "space lag" of the U.S.A. behind the Soviet Union at the end of the 1950's and the first half of the 1960's, when the prestige of the U.S.A. as the leading scientific and technical power was very shaky, the ideologist of American imperialism /160 introduced essential changes into the system of evaluating the capabilities of governments in modern conditions. The capability of a government to conduct independent space research became assessed as one of the most important apparent indices of its strength and vitality in the broadest sense of this concept.

In a special announcement of the State Department, aimed at the director of NASA it was stated that the force of a nation can be seen in a narrow sense as the capability of counteracting an enemy or in a broader one, as an index of not only the level of "security of the government", but also of a number of other necessary capabilities (economic, technical, managerial and also a

system of education and moral evaluations). In any sense the "contribution of the space program towards strengthening the U.S.A.'s power is too great and too evident" [18].

Several basic directions in the development of the U.S.A. space program exist.

In particular, this program was essentially effected by the "cold war" and the arms race and tendency toward using its results for military purposes has been present in it from the very beginning.

A concrete expression of this tendency is the creation and operation of a space system supporting the military activities of the armed forces, and also scientific research and development, directed at creation of offensive and defensive systems of space weapon. These achievements are used by the U.S.A. Department of Defense for improvement of military potential, are considered in current positions of military doctrine and during preparation of highly qualified cadres, and also in utilization for military purposes of the achievements of science and engineering in general.

A table testifies to the great deal of attention paid to development of military space projects, and from it is is possible to see that during the course of the 1960's the allocations of the Department of Defense for space programs grew almost constantly. The same position was maintained in the beginning of the 1970's.

The total number of launches for solving military problems significantly exceeds the number of launches for other projects. Besides this, it should be noted that the experiments of NASA is analyzed and used by the U.S. Department of Defense.

The presidents of the United States, occupying this post /161
after 1958, when work began on the national space program, placed the state of development of astronautics in the U.S.A. in a direct dependency on the capabilities of the government to successfully conduct a selected political course.

For many of the announcements of the U.S. presidents, acknowledgement is characteristic of the "power" element in intentions to use the space program in the interests of the government, which is to say a striving to make into a new instrument of pressure, including military pressure on other countries.

It is sufficient to recall the words of President Kennedy, who proclaimed in a special message to Congress on 25 May 1961 a national goal of winning the "leading" position in space /162

research, which in many respects might prove to be the deciding factor for our (the U.S.A. -- author) future on earth" [19].

TABLE 16 CHANGES IN ALLOCATIONS FOR PROGRAMS OF NASA AND THE DEFENSE DEPARTMENT IN 1960-1970 (in millions of dollars)

Fiscal Year	NASA		Defense Dept.		Total	
	Allocations	Change by comparison with previous years	Allocations	Change by comparison with previous years	Allocations	Change by comparison with previous years
1961	926.0	+464.5	813.9	+253.0	1739.9	+717.5
1962	1796.8	+870.8	1298.2	+484.3	3095.0	+1355.1
1963	3626.0	+1829.2	1549.9	+251.7	5175.9	+2080.9
1964	5046.3	+1420.3	1599.3	+49.4	6645.6	+1469.7
1965	5167.6	+121.3	1573.9	-25.4	6741.5	+95.9
1966	5094.5	-73.1	1688.8	+114.9	6783.3	+41.8
1967	4862.2	-232.3	1663.6	-25.2	6525.8	-257.5
1968	4452.5	-409.7	L921.8	+285.2	6374.3	-151.5
1969	3844.8	-607.6	2082.5*	+160.7	5927.3	-447.0
1970	3599.0	-245.8	2218.7*	+136.2	5817.7	-109.6
Total of the ten years	38,415.7		16,410.6		54,826.3	

* Projected

SOURCE: "1970 NASA Authorization. Hearings before the Subcommittee on Manned Space Flight on the Committee on Science and Astronautics. U.S. House of Representatives, 91st Cong., 1st Sess. on HR 4046, part 1", Wash., 1969, p. 36

There is knowledge of the statement of Lyndon Johnson, who shortly before his accession to the post of president of the United States announced, clearly registering the American approach to international relations to other countries: "We cannot...allow another government to achieve worldwide mastery through the use of space weapons" [20].

The appearance of space equipment lead to creation in the U.S. Department of Defense of new specialized organizations, whose functions included exploitation of space systems for military purposes, and had also lead to the development of new positions

in military theory, strategic and operational and tactical concepts.

Among the tasks whose achievements must promote the national space program of the U.S.A. for the provision of economic advantages is constantly recalled.

In a number of cases this space program secures direct economic gains through utilization of space systems for solving practical problems (for instance, communications satellites, navigation and meteorological satellites, etc) and also bears tangential gains, promoting in particular an increase in the productivity of labor through the use of improvements obtained during the course of work on space projects.

The economic return of space research can also be expressed in the form of introduction into practice of the achievements of science and engineering, which became possible as a result of preparation for the launches of satellites, automatic stations and flights of spaceships with a crew.

During the first half of the 1960's the national space program was a noticeable stimulus for the development of the U.S.A. economy and a source of major profits, primarily for the aviation corporations who mastered various forms of space products. It should, however, be noted that even beginning in 1966 the scale of the national space program began to be reduced, which caused crises in the aviation and space industry which continued to be observed in the beginning of the 1970's.

Colliding in the beginning of the 1970's with serious economic problems, the U.S.A. was forced to re-examine a number of /163
positions of its scientific and technical policies, touching on astronautics, striving to make space engineering more profitable. This explains the requirement by President Nixon for accelerating the rates and expanding the scales of practical application of space engineering. A special role is given to satellites for the study of natural resources of the earth, which according to the words of the president, must ease solution of such problems as observing cracks, finding minerals and determining water resources.

One of the major problems, proclaimed by the law on aviation and astronautics of 1958, in accordance with which NASA was created and the problems of civilian activity in this area were determined, was "broadening of knowledge on phenomenon in the atmosphere and space" [21]. Scientific investigations continued to remain one of the major tasks of the national science program of the U.S.A. The development of scientific investigations in

space is seen on one hand as a source of new knowledge, and on the other as a base for the development of technology.

Finally, still another major task of the U.S.A. national space program consists of promoting the strengthening of the scientific and technical positions of the U.S.A. in the international arena. The singular scientific and technical "work done in anticipation" placed at the disposal of the U.S.A. with realization of space projects, proved to be an effective lever for developing cooperation with capitalist countries which was favorable for the U.S.A. The U.S.A. receives real possibilities for using space bases, tracking stations and other earthbound objects on the territories of many countries supporting the conduct of space experiments and attracts qualified cadres from the countries allied with them.

The U.S.A. concentrated its basic efforts on relationships with the capitalist and developing countries along the line of bilateral agreements, deseminating astronautics for concrete problems, and also supports relationships with regional organizations, primarily with Western European ones.

It is absolutely apparent that this activity is pursuing not only technical and economic, but also political goals. According to the evaluation of the deputy director of NASA, T. Payne, "The contribution of joint projects with participation of NASA in the development of organizational structures and a given area of scientific knowledge abroad is especially important for the future. They played the role of catalyst in the process of creation of the national space organizations in the majority of countries..."[22]. The U.S.A. considers with this that many capitalistic and developing countries manifest interest in space research, although they have not yet created sufficient economic, scientific and technical potential to allow them to independently realize even small space projects. This gives the possibility for the U.S.A. to establish rigid conditions for these countries, in particular economic ones. At the beginning of 1973 the cost of a modern space project exceeded 500 million dollars, and other countries bore 3/4 of this sum. /164

At the end of the 1960's and the beginning of the 1970's the overall volume of work in the frameworks of the national space program was reduced essentially. However, regardless of the reduction of the "economic force", the U.S.A. is persistently trying to expand the complex of international measures accomplished on its basis, and thereby find new foreign stimuli for its development through foreign capital investments, the participation of scientists and specialists and reduction of "national"

elements in the space programs of other countries by means of attracting them to work in bilateral space projects with participation of the U.S.A.

In the message on scientific research and development on 16 March 1972 President Nixon announced that in the coming years it is necessary to develop a "new sense of partnership in science and engineering" [23]. The searches for new forms and methods for collaboration in space research was also being done over the course of the last several years. Thus, a special working group, occupied upon President Nixon's orders with analysis of perspectives of development of the national space program of the U.S.A. right up to the middle of the 1980's, recommended in particular: "The most impressive form of international collaboration would be inclusion of a foreign astronaut among the crew of an American spaceship. This question should be seen from the point of view of the capabilities for expanding the direct contribution of other countries in the American space program" [24].

By the beginning of 1973, the U.S.A. realized no less than 250 bilateral projects on various problems in space research, and the partners of the U.S.A. in this consisted of more than 70 countries. Besides this, the U.S.A. conducted over 600 launchings of high-altitude research rockets from all continents, released 16 satellites, on board which were installed instruments, prepared by specialists of other countries, and planned 15 more such launchings. Equipment was installed in more than 50 countries for receiving data from the American meteorological satellites [25]. The objects of the "space partnership" of the U.S.A. are primarily seen in the developed capitalist countries of Western Europe and Japan. /165

In the area of space research the "technological gap" between the U.S.A. and Western Europe is more perceptible. Thus, for instance, in 1965-66, when work on the national space program the U.S.A. reached its maximum scope, Western Europe lagged behind the U.S.A. according to volume of gross national products (GNP) by one third -- 429 billion dollars by comparison with 639 billion dollars in the U.S.A., and expenses on space research amounted to 210 million dollars by comparison with 6.9 billion dollars, or 0.05% of the GNP by comparison with 1.05% of the GNP in the U.S.A. [26].

The relationship of the U.S.A. with the countries of Western Europe in space research has taken on complex forms. Availing itself of the technical "work done in anticipation" in development of communications satellites, the U.S.A. organized a multinational commercial corporation on the development and operation of a system of space communications -- the "Intelsat" consortium. The "Comsat" corporation represents the interests of the U.S.A.

in the consortium, and maintains control of its share holdings. The leading countries of Western Europe have no more than 30% of the shares in this organization and, naturally, cannot pretend to the leading position. They are still not ready for equal competition with the U.S.A. in this area.

Even in the beginning of the 1960's the Western European countries created specialized organizations-- the European Space Research Organization (ESRO) and the European Rocket Development Organization (ELDO), which must with time provide them with the possibility of moving out from beneath the control of the U.S.A. in some narrow areas of practical application of space engineering. Besides this, the leading countries of Western Europe are striving to concentrate within the frameworks of their national programs effort on concrete problems, with which the U.S.A. is not occupied.

According to forecasts by American experts, widespread /166
participation of Western European governments in the U.S.A. space program will yield no less than 10%, or about 1 billion dollars worth of savings in realization of only one project of a transport spaceship for multiple usage. The U.S.A. does not conceal its striving to deprive the countries of Western Europe of their independence in the development of space research and to make them to the greatest possible degree dependent on its material and technical base. In the annual report by the president of the U.S.A. on work in the area of aviation and astronautics, presented to Congress on 31 January 1971, it was noted that Western Europe would probably be forced to move away from the project of the carrier rocket "Europa" and in the future carrier rockets for space experiments in the Western European countries would be furnished by the U.S.A. [27]. This practice allows the U.S.A. to limit the competitive capability of the countries of Western Europe.

The absence of a single European scientific and technical policy in the area of space research essentially makes realization of Western European space programs difficult. However, in the 1970's the countries of Western Europe are preparing to oppose expansion of the U.S.A. in this area with "regional integration"

The position in the American-Western European rivalry in the area of creation of various types of aviation and space equipment is extremely complex and cannot be clearly determined. In particular, after the 30th Aviation and Astronautics Exposition in Paris in 1973, the personal representative of President Nixon, Senator B. Goldwater remarked: "We, the Americans, must pay attention to the fact that the Europeans intend not only to catch us, but also replace us as the world leader in

the area of aviation and in all that is connected with it. How industry must understand that it no longer occupies the dominating position which it occupied before the ridiculous decision not to build the supersonic transport airplane" [28].

At the same time on 31 July 1973 the European Conference on Space Research adopted a resolution which practically subjugated the Western European governments to the U.S.A. in the area of piloted flights right up to 1990. This resolution was officially affirmed in a treaty on space laboratories, signed in September of 1973. The countries of Western Europe /167 took upon themselves the building of an orbital laboratory which will be used in combination with an American repeated use spaceship. It is intended that at the beginning of 1979 the space laboratory, created by the Western European governments, would be delivered to the U.S.A. for subsequent launching into orbit. An argument is going on among the countries of Western Europe to determine which of their representatives would accomplish the first space flight (the FRG, contributing over 1 billion marks -- 52% of the total cost -- into the joint project, hopes that the first astronaut will be its citizen). In answer to this revolution of the European Conference on Space Research, NASA promised the countries of Western Europe some advantages in the delivery of satellites and instruments manufactured by the specialists of these countries into orbit.

In this way, in the relations between the U.S.A. and Western Europe, one more sphere of rivalry is noticed-- competition in the development and specially in the practical utiliztion of space equipment.

A significant part of the joint measures on various problems of space research, which the U.S.A. organizes, belong to the developing countries of Asia, Africa and Latin America. Earthbound stations for picking up data from American meteorological satellites and from satellites for ionospheric research and for other experiments are located, for instance, in the republic of Chad, Kenya, Mozambique, Senegal, Sudan, India and Thailand. The possibility for creating tracking stations and other objects for earthbound support of American space experiments on the territories of foreign governments provide the U.S.A. with a whole series of political, scientific-technical and military-strategic advantages.

Among these American objectives are most of all earth stations for retransmission of radio and television signals. The U.S.A. gives great meaning to communications satellites as a means for ideological influence on the populations of other governments including on the populations of the developing governments. Experiencing an acute shortage of qualified cadres, a number of these countries, primarily India and Brazil, are striving

to create national general education programs, which would allow the cultural level of the population to be raised. Communi- /168
cations satellites open this possibility. The U.S.A. is enthusiastically offering these satellites to the developing countries within the frameworks of bilateral agreements. The first such project is already prepared in combination with India. It provides for direct television braodcasting to 5000 indian villages, into which television receivers will be distributed. India sets the following task for this project: to raise the cultural level of the population, improvement of methods for conducting agriculture, increasing the level of health education and improving the health of the population, educating children and adults, etc. The U.S.A. proposes to check in practice the training which can consequentially be used in more improved systems of space communications. The American ATS-F satellite will be used in the project. The U.S.A. is preparing a similar project for Brazil and other developing countries.

The U.S.A. is also developing a system of measures which is connected with the use of American satellites by other countries for investigation of the natural resources of the earth, capable of determining deposits of minerals, following the course of development of agricultural crops and determining the degree to which they are subject to disease, following the movement of schools of fish in the ocean, etc.

They intend to attract various countries to these measures.

The very character of a number of modern space programs, especially in the study of processes and phenomenon in space, on investigation of the moon and planets and on the study of natural environment from space, brings about the feasability for combining the efforts of many countries, and primarily the great space powers, the Soviet Union and the U.S.A. The problems in collaboration between the U.S.S.R. and the U.S.A. in space research are closely tied with the general atmosphere of Soviet-American regulations. Implacability in the ideological struggle and a hard line in rebuffing aggressive actions of imperialism are contained in the foreign policy of the Soviet Union with a subsequent course toward development of mutually advantageous relations with all countries, regardless of their social structure.

In an accounting report by the CC CPSU to the 24th Party Congress it was stated that the Soviet Union is ready to parti- /169
cipate (together with other interested governments in solution of problems as conservation of the natural environment, mastery of power production and other natural resources, the development of transportation and communications, prevention and elimination of the most dangerous and widespread diseases and the investigation and mastery of space and world ocean" 29.

The first agreement between the U.S.S.R. Academy of Sciences and NASA on collaboration in space research was signed on 8 June 1962. The concrete details and new problems along which the collaboration was organized were stipulated in agreements which were concluded in subsequent years.

At the present time the collaboration of the two countries in space research is developing along the following directions: space meteorology (the exchange of data, obtained from satellites, investigations using meteorological missiles and the development of methods for studying the natural environment); base communications; the study of magnetism (work on compiling a chart of the earth's magnetic field and exchanging data on geomagnetic measurements obtained from satellites) and space medicine and biology (in particular, preparation of the three-volume work "Basics of Space Biology and Medicine" in the Russian and English languages). NASA and the U.S.S.R. Academy of Sciences have exchanged samples of lunar soil.

Beginning in 1970 the journeys of delegations studying the practical problems of Soviet-American collaboration in space research became regular; an exchange of opinions was conducted on the basic directions for possible provision of compatibility of means for approaching and docking of piloted spaceships and stations.

An important event in the course of development of the Soviet-American collaboration was the signing on 24 May 1972 in Moscow of the agreement between the U.S.S.R. and the U.S.A. on collaboration in research and utilization of space for peaceful purposes.

In the preamble to the agreement the role which the U.S.S.R. and the U.S.A. play in investigation and utilization of space for peaceful purposes is highly evaluated, their striving toward further broadening of the collaboration in mastery in space for peaceful purposes is emphasized, the accumulated positive experience of collaboration in this area by both sides is noted, as /170
is the desire to place the results of scientific investigations obtained during mastery of space for peaceful purposes toward the good of the peoples of the two countries and of all peoples of the world. Besides this, it was especially emphasized that the agreement is based on the basic positions of the treaty on principles of activity of governments in research and use of space, including the moon and other heavenly bodies, and also on saving of astronauts, the return of astronauts and the return of objects launched into space.

In this way, the Soviet-American agreement is located in

direct accordance with all existing international documents regulating the very forms of activity of governments in investigation and utilization of space.

The basic directions of joint work are defined in the articles of the agreement. In particular, the U.S.S.R. and the U.S.A. will develop collaboration in the area of space meteorology, the study of the natural environment, the study of near space, the moon and planets, space biology and medicine and in particular they will collaborate for purposes of adopting all necessary measures to encourage and support the fulfillment of programs of combined measures, contained in the final document, signed by the leaders of NASA and the U.S.S.R. Academy of Sciences on 21 January 1971.

The basic forms of collaboration in the first stage provides for an exchange of scientific information and delegations, and meetings of scientists and specialists of both countries. For development and accomplishment of the corresponding programs of collaboration, mixed working groups can be created.

The agreement on the conduct of work on creation of compatible means for approaching and docking Soviet and American piloted spaceships and stations for the purpose of increasing the safety of manned flights in space and providing the possibility for accomplishing combined scientific experiments in the future aroused the most interest in worldwide society. The first experimental flight for testing these means, providing for the docking of a Soviet spaceship of the "Soyuz" type and an American spaceship of the "Apollo" type with mutual transfer of astronauts, is intended to be conducted during 1975. The agreement provides fur- /171
ther participation of both countries in international activities directed at the solution of international legal problems of research and use of space for peaceful purposes in the name of strengthening law and order in space and the further development of international space law and also of their mutual collaboration in this area.

The problems and forms of collaboration which are mentioned in the agreement are not considered the only ones possible and acceptable. The sides might by mutual agreement determine other areas of collaboration in the investigation and utilization of space for peaceful purposes.

The signing of the intergovernmental agreement on collaboration in space research without a doubt opens new perspectives for the development of combined works by Soviet and American scientists and specialists in this important area of scientific and technical progress, having much meaning for all of mankind.

However, it should be noted that by comparison with the basic directions of development of the national space program of the U.S.A., the "Soviet-American element" is still not great and can be assessed only as the beginning of a favorable tendency, whse successful development will depend on a whole series of different factors.

In the widest plan, success in development of collaboration between the U.S.S.R. and the U.S.A. in space is a function of the realistic steps taken to promote progress in Soviet-American relations on the whole: in disarmament and further limitation of strategic arms, in the adoption of measures on decreasing the danger of outbreak of a nuclear war, and the development of mutually advantageous economic ties.

The Scientific and Technical Revolution and U.S.A. Policy in the World's Oceans

During the recent years a transfer can be increasingly distinctly traced in the practical activities of many governments away from traditional use of the ocean, limited to the shorline regions and surface, to the mastery, based on achievements of /172 the scientific and technical revolution, of resources, strategic space, depths and the ocean floor on a planet-wide scale.

The apparent growing role of the ocean as one of the most important factors in the development of the world economy is completed. According to evaluations on hand, the total annual volume of worldwide production of goods and services connected with mastery of the ocean amounts at the present time to about 60 billion dollars [30]. In 1970 the ocean's share amounted to 19% of the worldwide recovery of oil, 6% of the natural gas and about 10% of the world demand for protein. It is expected that by 1980 the world ocean will furnish from 30 to 40% of the worldwide recovery of oil [31]. The transfer to a controlled maritime economy, the development of a system of aquaculture and further improvement of the method of protecting and rationally using salt water fishing resources are some of the real bases for solving the protein problem for the growing population of the earth. The significance of the ocean as a major transportation highway, providing the development of international economic ties, is also constantly increasing.

In evaluation of the approach of some governments or others to a mastery and utilization of maritime space and resources, it is necessary to consider a number of different factors.

In particular, as creation of practical possibilities for mastering the resources of the sea bottom increased, it became

clear that some important positions of the Geneva Conference of 1958, comprising the basis of international law, require further clarification. Precise definitions of the limits of the continental shelf and territorial waters located under the jurisdiction of the shoreline state are absent in these conventions. A number of problems arise in this context with respect to the international law status of the sea bottom and its resources outside the limits of the continental shelf.

Further, regardless of the swift broadening of the front of scientific and applied works in the ocean, the allocation of collosal financial means and utilization of the newest achievements of the scientific and technical revolution, the economic potential of the ocean is only beginning to mastered. There are only approximate, by far not complete evaluations of the volume, distribution and perspective for profitable use of ocean resources.

It should also be considered that principle differences in /173
national tasks and sharp disproportions of scientific, economic and military potentials of countries involved in mastery of oceanic spaces and resources exist.

The combination of the factors listed above and many others has promoted the transformation of the problem of mastering and using the world ocean and its resources into a complex international problem, bearing a global character and affecting the basic economic and political interests of the majority of governments of the world.

Two principally different approaches towards solution of this problem are manifested clearly.

The first approach is characterized by a striving toward obtaining unilateral advantages with respect to rights and practical possibilities in mastering and using resources and space of the ocean. The characteristics of monopolistic capitalism are absolutely acceptable with respect to this direction, and are given by V. I. Lenin in his work "Imperialism as a Higher Stage of Capitalism", in which he emphasizes the "unavoidable striving of financial capital toward expansion of economic territory", and its striving to grab as much land as possible, of whatever kind, wherever and however, considering the possible sources of raw material, fearing to fall behind in a frenzied struggle for the last piece of unclaimed earth or for the boundary of pieces which are already divided" [32]. The second approach is connected with attempts to seek constructive ways for agreement of existing problems and ones which arising again of intergovernmental relations in the world ocean on a commonly acceptable, nondiscriminatory basis and on the basis of developing a

mutually advantageous international collaboration both in the area of study and rational utilization of the ocean and its resources, and in the sphere of further improvement of international maritime law. This is the approach which characterizes the policies of countries of the socialist system.

It should be noted that in recent times increasingly broad social strata in the West, including the influential representatives of the ruling circles, recognize that only on the basis of equal rights and mutually advantageous collaboration can the existing international problems in the world ocean be solved.

During recent years the development of international collaboration in questions of mastery and utilization of the world /174
ocean have already yielded a number of positive results. In this context it is necessary to point out the conclusion of a treaty on prohibition against placement of nuclear weapons and other types of mass destruction weapons on the floor of the seas and oceans and in their depth, and to development of an international convention on prevention of pollution of the sea by departure - refuse and other substances, the acceptance by the United Nations of a number of basis-proposing resolutions on the development of oceanographic collaboration, and also development by the International Oceanic Congress of UNESCO of a long-term expanded program for oceanic study and research.

The agreement between the governments of the U.S.S.R. and the U.S.A. on collaboration in the area of research of the world ocean [33], concluded in June of 1973 during the period of the visit by general secretary of the CC CPSU L. I. Brezhnev to the U.S.A., has a principally important meaning for the realization of this program. In accordance with this agreement the sides will direct their efforts towards solution of a whole series of important fundamental and applied problems in the area of oceanography. Among them are such problems as investigation of the processes of the interaction of the ocean and atmosphere, study of oceanic currents on planetary scales, geological, geophysical and geochemical investigation in the maritime medium, and work on study of the biological productivity of the world's ocean.

Characterizing the meaning of the signed agreement, it is necessary to emphasize that the data and materials on the content of the ocean, on the processes taking place in it and on its role in formation of the weather and climate of our planet obtained during the course of Soviet-American oceanographic work is an important deposit in the development of scientific bases for rational mastery and use of maritime food, power production and mineral resources.

They allow for the development of increasingly precise long-term forecasts of the weather and condition of the ocean, as well as for predicting in good time and eliminating potentially dangerous effects on the maritime medium. In this way, joint research by Soviet and American scientists in the world ocean serves solution of a whole set of actual problems affecting the interests of all countries and peoples. In other words, this agreement, like a whole series of documents signed in recent years on collaboration in areas of mastery and utilization of maritime space and resources [1] will promote the general business of scientific, economic and social progress throughout the whole world. /175

The growing participation of American organizations in the accomplishment of multilateral and bilateral programs of oceanographic research testifies not only to the interests of the U.S.A. in the development of international collaboration in this area, but also of the recognition by them of the successes of other governments, and in first over the Soviet Union, in the conduct of scientific research in the world's ocean.

It should be noted that the approach of the U.S.A. to the problem of the world ocean is not clear. A bitter struggle of various forces, pursuing different, for the time being mutually exclusive, goal, is going on around it, although on the whole solution of the problem of the most rapid mastery and all-round utilization of oceanic space and resources is related in the U.S.A. to questions of government politics and is seen as a national mission, commensurate in scale with the mission of mastering space.

Over the period 1961-1971 the federal oceanographic budget alone amounted on the whole to about 3.5 billion dollars [34]. (For comparison let us say that the government allocations of the U.S.A. for oceanography exceed the corresponding allocations of Japan, the FRG, England, France and Canada taken together by more than 3.5 times.) As concerned private capital investments of the U.S.A. in mastery of the ocean , they are also constantly increasing and by 1970 reached 20 billion dollars [35]. At the present time about 3000 American companies are involved in work on mastery and utilization of the ocean and its resources. About

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[1] In this context it is necessary first of all to note the Soviet-American agreement on limitation imposed on deployment of nuclear missile weapons on submarines, and on measure to prevent incidents in the open sea (1972-1973); joint measures on protecting the maritime medium from pollution within the frameworks of the agreement on collaboration in the area of protecting the environment (1972); intergovernmental agreements on maritime navigation (1973) and on questions of regulating the fishing industry in the Pacific and Atlantic Oceans (1973).

250 scientific organizations exist the country, which are directly connected with research in the world ocean, over 7000 scientists and oceanographic specialists can be counted as well as about 10,000 students and graduate students, undergoing preparation in this area in 129 scientific centers in the U.S.A. [36]. /176

In 1970 the natinal administration for mastery of the ocean and atmosphere was created inside the frameworks of the Department of Commerce on the basis of controlling services on study of the environment. The creation of the administration refleated a striving of the U.S.A. to bind the task of mastering the ocean more tightly to the complex problem of mastering and using the environment, both in national, and in international plans. This course, according to the calculations of the ruling circles of the U.S.A., must contribute on one hand to a more distinct balance in the place and role of problems of mastering the ocean among the remaining general national problems, and on the other hand, with disguising the military direction of a whole series of oceanographic work conducted in the U.S.A.

Clearly understanding that utilization of the sea space and resources requires the conduct of a collosal volume of oceanographic work and introduction of corresponding technology, from year to year the U.S.A. increases the volume and scopes of work on creation of a scientific, technical and economic base for mastery of the world ocean. With this they originate from a position in which the countries which first developed deep water equipment received highly essential strategic advantages [37], and the rates of development of investigation and exploitation work in the ocean are determining factors in the acceptance by the corresponding international organizations of political resolutions touching on mastery of the ocean [38].

At the end of the 1960's a special presidential commission, composed of congressmen and leading representatives of industrial, military and scientific circles, developed a project perspective national program for the U.S.A. on the complex mastery and utilization of the ocean and its resources for 1971-1980 [39]. A sufficiently clear impression of the character and direction of this program can be obtained by examining the forecasts, published in the U.S.A., touching on perspectives in mastery by the United States of America of aerospace (as applied to mastery of the ocean), surface and underwater spaces, the ocean floor and also the accomplishment of political and legal measures on organization of national and coordination of international activities in the ocean (see Table 17). The forecast includes the same goals whose achievement is possible with the existing organizational structure and level of scientific and technical development, as well as those whose achievement demands significant progress in the area of science and engineering. /177

Analysis of the forecasting diagram (whose obviousness makes relisting of the actual goals and proposed periods for their achievements superfluous) allows a number of important conclusions to be drawn on the character of future activities of the U.S.A. in the world ocean. It is expected that the approach to the problem of mastering and using the ocean and to the complex many-planned problem will be the basic policy of the U.S.A. in this area at least until the year 2000. The creation of a scientific and technical base and mastery of the economic potential of the ocean, military utilization of maritime space and the development of monitoring (observation) systems and control over the condition of the maritime environment and the resources contained in it, solution of socio-economic and international legal questions, all these problems will be given tireless attention during the coming ten year period.

One of the most important tasks foreseen by the project of the perspective program is the creation of a scientific, engineering and technical base, which would give the possibility for the U.S.A. to begin profitable exploitation and utilization of a continental shelf and slope up to a depth of 600 meters by 1980, and fully master the ocean depths in a range of up to 6 km, amounting to 98% of the area of the ocean floor, by the year 2000 [40].

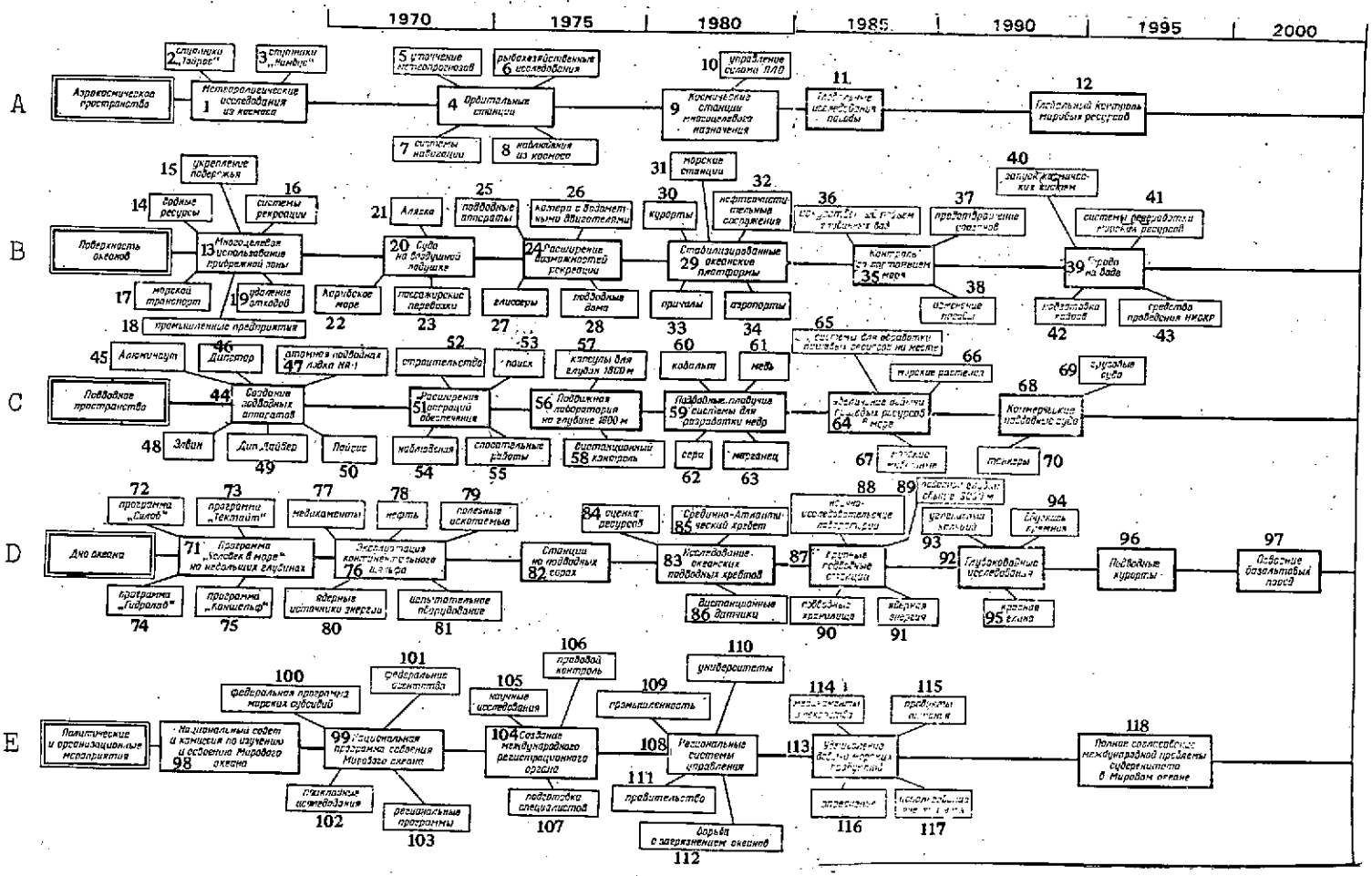
The problems of realizing the American long-term program of mastering the world ocean and its resources is placed by its authors in a dependency on and regarded in an inseparable tie with the development of international relations in the area of political and legal regulation of the activities of the governments in this sphere.

Such an approach is explained by the enormous value of the economic potential of the ocean in solving the problem facing the U.S.A., and in the growing role of international regulation of work in this area for its mastery, and also by the specific political tasks which the American ruling circles connect with this regulation.

Comparison of the requirements of the countries of the world and the U.S.A. separately in mineral resources, which might be found on the continental shelf with reserve of these minerals on dry land show that according to a number of metals for satisfaction of the U.S.A.'s requirements in the period up to the year 2000, utilization of the resources of the shelf is unavoidable, since their reserves on dry land were clearly not suffice. /178

According to on-hand evaluation, the demand in the U.S.A. /179

FORECAST DIAGRAM FOR MASTERY OF THE WORLD'S OCEAN BY THE U.S.A.



SOURCE: "The Futurist", vol. IV, no 3, June 1970, pp 90-91.

KEY TO TABLE 17:

A. Aerospace
B. The Ocean Surface
C. Submarine Space
D. The Ocean Bottom
E. Political and Organizational Measures

1. Meteorological research from space
2. "Thyros" satellites
3. "Nimbus" satellites
4. Orbital stations
5. Weater forecast precision
6. Fish farming research
7. Navigation systems
8. Surveillance from space
9. Multipurpose space stations
10. Control of antisubmarine defense forces
11. Global weather research
12. Global control of world resources
13. Multipurpose use of areas near shore
14. Water resources
15. Strengthening of shoreline
16. Recreation systems
17. Sea transport
18. Industrial enterprises
19. Waste disposal
20. Air cushion vehicle
21. Alaska
22. Carribean Sea
23. Passenger movements
24. Expansion of recreational possibilities
25. Underwater apparatuses
26. Chambers with hydrogen engines
27. Gliders
28. Underwater houses
29. Stabilized ocean platforms
30. Resorts
31. Sea stations
32. Oil refining constructions
33. Wharfs
34. Airports
35. Control of sea conditions
36. Artificial raising of deep waters
37. Prevention of hurricanes
38. Changing weather
39. Cities on the water
40. Launching of space systems
41. Marine resource processing systems
42. Training of cadres
43. Means for scientific research and design work
44. Creation of underwater apparatuses

KEY TO TABLE 17 (Continued):

45. Aluminaut
46. Deepstar
47. NR-1 atomic submarine
48. Alvin
49. Deep Diver
50. Pisces
51. Expansion of support operations
52. Construction
53. Search
54. Surveillance
55. Life-saving work
56. Moving laboratory at a depth of 1800 m.
57. Capsules for 1800 m. depth
58. Remote control
59. Underwater floating system for developing the depths
60. Cobalt
61. Copper
62. Sulphur
63. Magnesium
64. Increasing yield of sea food resources
65. On-site food processing systems
66. Marine flora
67. Marine fauna
68. Commercial submarines
69. Cargo ships
70. Tankers
71. "Man in the Sea" program at shallow depths
72. "Sealab" program
73. "Tektite" program
74. "Hydrolab" program
75. "Conshelf" program
76. Exploitation of the continental shelf
77. Medicines
78. Oil
79. Minerals
80. Atomic energy sources
81. Testing equipment
82. Stations on underwater mountains
83. Investigation of oceanic undersea ranges
84. Evaluation of resources
85. Mid-Atlantic range
86. Remote sensors
87. Large undersea stations
88. Scientific research laboratories
89. Mastery of depths below 3000 m
90. Underwater storage
91. Atomic power
92. Deep water research
93. Calcium carbonate
94. Silicon dioxide
95. Red clay

KEY TO TABLE 17 (Continued):

96. Underwater resorts
97. Basic basalt ores
98. National council and commission on mastery of the world's ocean
99. National ptrogram of world ocean mastery
100. Federal program of maritime subsidies
101. Federal agencies
102. Applied research
103. Regional programs
104. Creation of international regulating body
105. Scientific research
106. Legal control
107. Training of specialists
108. Regional control systems
109. Industry
110. Universities
111. Government
112. Struggle with pollution of the oceans
113. Cheapening of marine product recovery
114. Drugs and medicines
115. Foodstuffs
116. Distillation
117. Using sea energy
118. Full agreement of international problems of sovereignty in the oceans

for mineral raw materials, mined from the ocean floor, will double by 1985 in comparison with the demand existing at the end of the 1960's [41].

Considering that the American industry is even now almost totally dependent on foreign shipments of diamonds and such metals as chromium, manganese, nickel, cobalt and tin, (and 40 of the 72 types of strategic raw material are shipped, in the opinion of the presidential commission from "politically unstable" regions of the globe) [42], intensive work is being developed in the U.S.A. on mastering the raw material resources on the ocean floor. Together with improvement of technical means for mining deposited minerals in areas near the shore, work is actively being done on creation of equipment and methods for extracting deep water manganese concretions. Perspectives in mastery of maritime ore deposits can be judged according to the following evaluations. One mining installation with a productivity of up to 2 million tons of concretions per year in combination with a refining plant could satisfy 40% of the annual demand of the U.S.A. for cobalt, 25% of the manganese, 10% of the nickel and 10% of the copper [2]. Noting the strategic value of manganese concretions, the president of the U.S.A. in his reports to Congress emphasized the real character of the perspectives in mastering this raw material [43]. /180

Special attention in the American program for mastering the ocean has also been paid to the utilization of maritime oil and gas deposits, which are seen as one of the means for solving the energy problem of the U.S.A. and reducing the dependency of American industry on foreign shipments of oil [3]. This is the explanation for the reasons behind the swift increase in allocations for the conduct of maritime exploration, search and exploitation work near the American shoreline. Over the last 20 years the monopolies of the U.S.A. have spent on work in underwater recovery of oil (beyond figures for taxes and lease payments, amounted to 5.8 billion dollars) over 10 billion dollars. As a result of this over the period from 1959 through 1971 the share of oil obtained in the U.S.A. through mastering underwater deposits (in relation to the total national recover) increased from 3.6 to 17%. By the beginning of 1971 the American monopolies had bored near its shoreline about 16,000 holes, including over 100 holes outside the limits of the continental shelf /181

[2] The "Deep Sea Ventures Inc." company completed creation in 1970 of a system of profitable recovery and refinement of manganese concretions and conducted tests work using suction installations at depths of 900 meters on the Blake Plateau.

[3] The seriousness of this problem can be seen by the fact that at the beginning of the 1970's the requirement of the U.S.A. for energy was satisfied through an import of 20%, and after 20-30 years this share, according to on-hand evaluations, can rise to 45%.

belonging to the U.S.A. Some of these bore holes, located in the Atlantic ocean and in the Gulf of Mexico, were bored at depths of up to 1500 m. Together with widespread utilization of stationary and portable marine drilling installations, projects for using complex systems for the recovery of oil located at great depths in the ocean are being developed in the U.S.A.

Evaluations show that at the present time expenditures by private industries of the U.S.A. for mastery of the ocean deposits of oil and gas alone amount to about 2 billion dollars per annum, and half of this is allocated to acquisition of concessions and deployment of underwater work near the shores of other countries.

Behind a mask of economic, scientific and technical "aid" to the developing countries the monopolies of the U.S.A. have already for a number of years actively conducted expansionist activity directed at obtaining access to resources of the shelfs and shoreline regions of countries not having either the financial or technical means for their exploitation. Thus, for instance, the "ocean mining" and "ocean science and engineering" companies conducted intensive exploration work on sectors of the Indonesian shelf 20,000 square miles in area, directed at finding tin, gold, platinum, zirconium, rutile and other minerals. In 1969 four American companies signed a contract for exploration and exploitation of oil and gas on the shelf of Indonesia with an area of about 30,000 square miles. In addition to the work on the shelves of Southeast Asia, investigation continues on the shelves of South Africa, Labrador, Guatemala and Greece. Plans for investigating the ocean bottom near the shores of a number of countries of the Indian Ocean basin are also being developed.

The cost of mineral resources mined by the U.S.A. in the ocean over the last ten years amounted to 12.5 billion dollars (in 1960-1964 it was 3.7 billion dollars, and in 1965-1969 it was 8.8 billion dollars), of which about 11 billion dollars went for oil and gas [44]. In 1969 alone the cost of mineral raw material mined by the U.S.A. underwater amounted to 2.53 billion dollars, or 36% of the cost of worldwide underwater mining (7.07 billion dollars).

Essential shifts have also occurred in the approach of the /182
U.S.A. to the problem of mastering the food supply potential of the world ocean, and primarily its protein resources. It is known that during the course of recent decade, fishing in the U.S.A. has remained practically unchanged, while the demand for products of the sea has constantly increased. This has lead to a situation in which the deficit in the trade balance of the US.A. due to the import of fish (in 1968, the volume of imported

fish reached a record level -- 70% of the production required in the U.S.A.) amounts at the present time to 920 million dollars. As a result a fundamental re-evaluation of the role of the maritime fishing industry conducted in the U.S.A. at the end of the 1960's and beginning of the 1970's a number of measures were adopted in the American policy of mastering the world ocean which were directed at developing this branch of industry. Work was developed for this purpose on creation of modern apparatus, methods and control systems for the fishing industry, on technical re-equipment for the searching and commercial fleet, and on development and improvement of methods for obtaining fish protein concentrate. It is expected that as a result of these measures by 1980 fishing by American fishermen will have increased by 40% by comparison with 1970 [45].

Activation in the U.S.A. of work on mastering the foodstuff potential of the ocean is not by far incidental. In particular, it is explained by attempts to reduce the import of fish, thereby improving the foreign trade balance of the country, and also to increase employment of the population in the shoreline regions. In addition to this the striving of the U.S.A. to strengthen its positions in the struggle for mastery of the food resources of the ocean and master new types and regions of the industry, in which they could widely use the technological advantages in this area by comparison with other countries, is explained by the expectation during coming years of expansion of international trade in products of fishing. Forecasts show that the cost of food fish products, which will be obtained in the world by 1976, will amount to about 40 billion dollars. In far-off perspective mastery of new regions and types of the industry with utilization of improved equipment, judging according to American evaluations, will allow the world annual harvest of sea products to reach up to 400-500 million tons [46] (by comparison with 70 million tons at the present time).

The world ocean plays an essential role in the military strategy of the U.S.A., an important element of which is the underwater means for nuclear missile attacks and defense. In these conditions provision for the possibility for conducting military operations in any area of the world ocean at any depth and at any time became one of the most important scientific and technical tasks placed before the U.S. Navy [47]. Allocations to the U.S. Department of Defense in the 1960's in the frameworks of the federal oceanographic budget alone reached 1.5 billion dollars, while during the second half of the decade they grew by more than 4 times by comparison with 1961-1965. /183

Utilization of the depths of the ocean, the ocean floor, and primarily its shelf regions are occupying an ever larger place in the military plans of the Pentagon. In a report to an

American assembly dedicated to analysis of American strategy in the oceans, MacDonald, a former member of the scientific consulting committee of the president of the U.S.A. directly pointed to the probability of strengthening in 1970's of the tendencies existing in the U.S.A. to rely on systems based underwater, since the transfer to operations at great depths would ease concealment of these systems [48].

Conclusion in 1971 upon the initiative of the Soviet Union of the treaty on prohibition of placement on the floor of the seas and oceans and its depth of atomic weapons and other types of mass destruction weapons, and also conclusion between the U.S.S.R. and the U.S.A. in May of 1972 of the temporary agreement on some measures in the area of limitation of strategic offensive weapons became a serious obstacle in the path of these plans.

Together with this, the struggle in the U.S.A. around further perspectives in the development of a national program for mastery of the ocean is far from finished. In particular, the military industrial complex is achieving expansion of military utilization of the world ocean.

Among the most real international problems in the area of mastering and utilizing ocean spaces and resources, reviewed at the end of 1967 in the United Nations, are the problems of refinement of a single norm for the width of territorial waters, borders of the continental shelf and development of an international legal policy for the ocean floor outside its limits.

During recent years a careful evaluation has been conducted in the U.S.A. of the different variations for solving the problems listed and the military, economic and international political consequences connected with their adoption. The result /184
of this work is a whole series of propositions and projects, with which the U.S.A. appeared at the United Nations and in which were reflected not only its approach to the solution of these problems, but also the positions with respect to utilization of international straits, the regulation of activities of governments in the area of fishing, the conduct of scientific research and protection of the ocean environment. The basic positions of the documents presented were laid out by R. Nixon in an announcement dedicated to the policy of the U.S.A. in the world ocean, with which he appeared in 1970 [49]. The president, in particular, proposed conclusion of an internatinal convention on establishment of a 12-mile limit to the width of territorial waters and affirmation of the 200 m isobath as the only criterion determining the edge of the continental shelf. The floor of the ocean bottom, located outside the limits of the 200 m isobath and called the international territory of the sea bottom,

is announced as the "common heritage of mankind", for the control of which the U.S.A. has proposed to found an international organ on resources of the sea floor [50]. It is projected that the organ, consisting of representatives of participating countries in the convention, will be responsible for the organization of work on exploration and exploitation of the resources of the internatinal territory of the sea bottom.

Analysis of the authority and procedural norms of activity of the organ showed a striving of its authors to create an organization without the sanction of which no government would have the right to conduct work on mastering the resources of the international territory of the sea bottom.

At the present time attempts are being increasingly clearly manifested by certain political activists of the U.S.A. to use the so-called concept of physical internationalization of the world as grounds for dessiminating the principle of "common heritage" to the living resources of the sea, the results of scientific research and other forms of activity in the world ocean with subsequent creation of corresponding supergovernmental structures for realization of this principle.

The unacceptability of the ideas set forth by the American politicians of "internationalization" of the spaces, resources, and type of activities of governments in the world ocean is evident. Under modern conditions the development of intergovernmental relations cannot go along the path of a move away from national sovereignty. It is inseparable from the political settlement of the complex problems of international relations. /185

The real basis for this settlement by the constructive proposals of the Soviet Union, with which it has repeatedly appeared and in which are considered the interests of all countries participating in the mastery and utilization of the world ocean.

The "Green Revolution" -- A New Weapon in U.S.A. Foreign Policy

One of the new lines of the "technological" diplomacy of the U.S.A. with respect to the developing countries is utilization of the achievements of the so-called "green revolution" as a weapon of economic and political expansion in the countries of Asia, Africa and Latin America. In the literature, the term "green revolution" is understood to mean a complex of scientific, technical and economic measures connected with the development and use in agriculture of new types of wheat, rice, corn and other crops for tropical and subtropical regions of the globe, in which the deficiency in foodstuffs is especially acutely felt. Since the new types of grain, with observance of set agricultural technical conditions, provide an addition to the yield from 30 to 100%, it is assumed that their introduction in wide scale

will allow gross yield of wheat to be increased by 10-32%, and that of rice to be increased by up to 12% [51].

As is known, in 1944 an experimental station was organized in Mexico under the leadership of the American scientist Dr. Norman E. Borlaug and was then converted into the international center for improvement of types of corn and wheat (CIMMYT). The mission of the center included cultivation of new high-yield strains of these crops, increasing their resistance to diseases, pests and unfavorable climatic conditions and improvement of the qualitative indices of the grain.

As a result of several years of hard work of the international center on cross-breeding of local wheat with Japanese dwarf types, new types were produced: "penjamo", "sonora" and "lerma", which are distinguished by high yield, resistance against disease and unfavorable climatic conditions, and also relatively /186
low sensitivity to light, which allows 2 to 3 crops to be grown per year, regardless of the duration of the light of day.

"The plants on the earth possess a multitude of miraculous genes, and it is necessary only to find them and combine them with each other" -- this is how N. Borlaug defined his scientific concepts [52]. For the complex of work on the improvement of wheat, in 1970 N. Borlaug was awarded the Nobel Prize.

A major role in the dissemination of "green revolution" was played by the activity of international scientific centers, and also various bilateral and multilateral agencies on rendering "aid" to the developing countries, which after the Second World War appeared in many countries, including in the U.S.A.

The first were occupied basically with the development of new agricultural technology and the desemination of it in the form of "know-how". One of the most important channels for desemination is farm specialists, living in the developing countries or travelling there for consultation. At the present time approximately 200,000 scientific colleagues from North America, Europe and Japan work in the developing countries. However, according to the acknowledgement of the American specialists working in services themselves, it is still difficult to consider desemination of agricultural knowledge in the developing countries and work in them as satisfactory [53]. In the first place, these so necessary services are insufficiently effective due to their small numbers and low qualifications of the personnel. In the second place, the specifics of agricultural production in the developing countries (small, frequently broken up sections of arable land) are such that the recommendations of service specialists on desemination for introduction of new equipment frequently remains only good intentions, since as a rule the peasants lack the necessary financial means for making use of

the proposed innovations.

Many developing countries are sending their students and apprentices to the developed countries to acquire experience and knowledge of the new technology. Up to 135,000 persons from the "third world" countries travelled to the U.S.A. annually.

Another path for desemination of technology, which is basically used by agencies, is desemination of the newest products, including seeds. The high-yield Mexican wheat, for instance, was distributed in Turkey in wide scale by a department of the agency for international development of the U.S.A. in Ankara. American specialists not only proposed the new seeds and checked them in the conditions of Turkey, but the agency also financed the import of 22,000 tons of these seeds [54]. /187

A similar situation was observed in Pakistan and in India. As soon as the suitability of the Mexican seed to the climate of these countries was determined, massive import of the seeds was begun. In 1967 Pakistan imported 42,000 tons of Mexican wheat; in 1965 India imported 350,000 tons. The technology proved to be comparitively cheap for the developing countries, since all research work had already been conducted in the international center in Mexico. This import allowed, according to the opinion of American specialists, the period of return from introduction of new technology to be reduced to 3-5 years[55].

The distribution of new types of wheat and desemination of them in various zones promoted a significant increase in production of grain. This is particularly evident in the example of Mexico. As is known, at the beginning of the 1950's Mexico experienced serious food provision difficulties and imported the major part of its foodstuffs from the U.S.A. In 1952-1963 new high-yield types of grain, which were well adapted to conditions of a country with a tropical climate, were introduced into the country in massive order. As a result, production of wheat in Mexico increased 3 times by 1970 in comparison with 1952-1956 and reached 2,400,000 tons, the economics of grain production of Mexico stood on a solid base, and the country changed into an exporter of grain (wheat and corn).

It proved to be possible to use the new types of wheat in many countries lying in the tropical and subtropical zones. By 1968-1969 the area occupied under it in the developing countries already exceeded by more than 10 times the cultivated area under the new wheat in Mexico. In 1970 alone about 10 million hectares were planted with the new types of wheat.

A broad program of introduction of high-yield types of grains

was accomplished in India. In this country, as a result of the increase in the quantity of land under the new types and the use of effective agricultural technical methods, the crop increased in a number of cases by 25-100%.

TABLE 18 AREA SOWN WITH HIGH-YIELD MEXICAN WHEAT IN ASIA (in thousands of hectares) /188

Countries	1966	1967	1968	1969	1970
India	2.96	511.2	2672.4	4000	6040
Afganistan	- -	1.8	26.	120	144
Nepal	1.4	6.48	24.5	- -	74.4

SOURCE: "War on Hunger", U.S. Agency for International Development, Wash., April 1971, p. 18.

During the course of 1961-1969 the per capital production of grain in India rose from 26.6 to 34.3 kg, and the gross harvest of grain of wheat, rice, corn, millet and sorghum reached a record level -- 110 million tons.

According to the opinion of Indian economists, in the 1970's India can become totally free from the import of grain. A program, in effect since 1965, for expansion of the areas under the new strains by 1973-1974 up to 24 million hectares (in 1970 10.3 million hectares were occupied by the new types of wheat and rice alone) is directed at the solution of this problem. In 1971 India adopted a resolution to stop the import of American wheat and move away from importing rice from the U.S.A.

However, in connection with a severe drought in 1972 and flooding in 1973, submerging crops on an area of 1.5 million hectares, India was forced to again turn to the import of grain. Thus, a treaty on the purchase of 1.5 million tons of wheat in the U.S.A., Canada and Argentina was concluded. Besides this, it was planned to purchase 500,000 tons to create a buffer reserve, which now has dropped from 8.5 million tons to 2.5 ÷ 3 million tons [57]. In 1972 the import of rice into the country increased. The Soviet Union, being guided by a desire to help the friendly Indian people during a time which is difficult for them, decided to ship India some quantity of grain as a loan of foodstuffs. Nevertheless, specialists consider that "even a year of severe drought or 2 comparitively unproductive years will not require such a significant import of grain as in the middle of the 1960's" [58].

We will examine now the position with another extremely /189
important food crop -- rice.

In 1962 the Rockefeller Foundation, together with the Ford Foundation, began to finance the International Rice Research Institute (IRII), whose missions included production of high-yield pygmy rice. Besides this, the institute set to work on development of field machines, equipment for drying and handling rice and various types of applied equipment and technology, and the machines were created with consideration for the specifics of the economies in the developing countries, which is to say they were simple in design, small and profitable on small peasant's sections. The institute is also conducting research for all rice producers in any countries, desiring to grow the new rice or furnish equipment for this [59].

The institute, headed up by the well-known American scientist Robert Chandler, was created in Los Banos, near Manila, colleagues of the institute conducted experiments on hybridization on almost 10,000 genetic strains of rice and created, by means of crossing a high and strong Indonesian type with a pygmy Taiwanese type, an optimal variation, which was named "miracle rice" -- types RI-5 and RI-8. A major American specialist in problems of agriculture of developing countries, an old colleague of the Washington corporation for the development of foreign countries Lester R. Brown announced that the new seed "might prove to be for the agricultural revolution in the developing countries the same as the steam engine was for the industrial revolution in England" [60].

The new types of rice not only exceed the traditional strains with respect to yield (65 and more per ha), but also mature faster (120 days as opposed to 150-180). Besides this, they are less sensitive to the continued light of day, and where there is a sufficient quantity of water and heat, it is possible to sometimes receive up to 3 crops per year. With this, the overall yield of grain per hectare exceeds 150 [61].

The new types of rice showed a good reaction to fertilizing. They could effectively absorb up to 135 kg of fertilizer per ha without flattening the stalks, while at the same time the local types bend over with the application of 45 kg of fertilizer per ha. The new type with optimal fertilizing yield has a higher economic effect. According to calculations of the economist /190
D. Hopper, 500 g of nitrous fertilizer increases the productivity of the old types by 5 kg of grain, and the new by 10 kg.

It should be noted that the cost of work on creation of the new types of rice also prove to be relatively low: from 1962 through 1968 the expenses of the institute amounted to 15 million

dollars. Commenting on this number, the representative of the Rockefeller Foundation, S. Wortman announced that due to the introduction of the types of rice the countries of Asia obtained an increase in harvest during 1967-68 by a total sum of 300 million dollars [62].

In 1970 India planted 4320 thousand acres with the new types of rice, the Philippines planted 1338 thousand, Indonesia planted 740 thousand, Burma planted 142 thousand, Malaysia planted 126 thousand and Nepal planted 123 thousand hectares. In all, in 1966 7.2 thousand hectares were planted in Asia with the new type of rice, in 1967 it was 1002 thousand, in 1968 -- 2595 thousand, in 1969 4648 thousand, and in 1970, 7700 thousand hectares.

The expansion of the areas under the new types of rice, together with other measures accomplished by the governments of the developing countries, caused a rapid increase in the world production of this crop. While in 1961, it amounted to 241 million tons, already in 1967 it was raised to 276 million tons, and in 1970 it went up to 292 million tons. According to prognosis of the FAO, worldwide production of rice in 1975 will increase up to 330 million tons, while the share of the developing countries include 234 million tons, or about 75% of the world's production [64].

The question arises: is it profitable for the U.S.A. to effect the "green revolution" and why are they financing and supporting it? As is known, the production of grain cultures in the U.S.A. increased from 133.6 million tons in 1960 to 206 million tons in 1971. The agricultural export over the course of the decade plays an important role not only in the foreign trade, but also in the foreign policy of the country. In the U.S.A. there is a commonly recognized point of view which was recently expounded in Congress by Senator Henry Jackson, that "the export of agricultural products to a significant degree facilitates solution of the problem of the U.S.A.'s balance of payments". Agriculture occupies 3.5-4% of the national income of the U.S.A., while the share of agricultural products in the total export reaches 20-25%. In fiscal year 1971-72 the export of agricultural products reached 8 billion dollars, and of this sum products worth 2 billion dollars /191 were exported to the developing countries.

Unfavorable climatic conditions in many areas of the globe in 1972-1973 sharply increased the demand for grain on world markets, which was also reflected in the agricultural export of the U.S.A. The total volume of agricultural export in fiscal year 1972-73 reached 12.9 billion dollars. The U.S.A. exported 1453 thousand tons of rice into the countries of Asia in 1972, which exceeds by almost twice the volume of export to this region in 1971.

Some representatives of the U.S. Department of Agriculture, including the Secretary of Agricultural E.Butts, are predicting that the sum of export of agricultural production in fiscal year 1973-74 can reach 16-20 billion dollars.

It would appear that with this interest in agricultural export the U.S.A. must retard accomplishment of the "green revolution", which will lead to an increase in the ability on the developing countries to rely on their own production, and also to a decrease in the import of agricultural production. According to a communication of the information service of the U.S. Department of Agricultural, the export of agricultural products to the developing countries was reduced by 20 million dollars in 1971 due to this reason.

And nevertheless, the U.S.A. is supporting the "green revolution", even risking losses of some part of its agricultural export.

What then cries out for a policy of supporting the "green revolution"? First of all for the ruling circles of the U.S.A. it is evident that, differing from the colonial times, today it is impossible to retard the progress of science on the edge of the "third world", and therefore it is necessary to be accustomed to changing situations. Together with this, analysis of relations between the U.S.A. and the developing countries allows the conclusion to be drawn that the "green revolution" is profitable to American monopolistic capital and profitable from many points of view. They are also not concealing the fact in the U.S.A. that they are participating in the development of the "green revolution" at the expense of their long-range ongoing political and economic goals. These goals are formulated in different ways, creating a developed picture as a whole. Thus, some American activists consider that, partially losing the sales market of agricultural production, the U.S.A. will nevertheless not prove to be the loser: it will acquire, from the point of view of the /192
struggle of it to world systems, solid "moral capital", by standing in the pose of benefactors to the "third world".

Others consider that at the basis of development of the "green revolution" lies the purpose of not allowing collision between the "full and hungry" nations, having made the gap between the developed capitalistic and developing countries using the "green revolution" less "explosive". With this the technological gap between the agriculture of the former and latter remains profitable to the U.S.A. and other developed capitalist countries: on one hand, by nudging the developing countries down the capitalist path of development using the "green revolution", the U.S.A. promotes the creation of new growing sales markets for means of agricultural production and on the other-- by retarding the course

of development, the "third world" is also maintained as a significant market for its agricultural production [65].

The "green revolution" also has apologists in the U.S.A. for other reasons. Some American officials, speaking out for aid to the developing countries in solution of the food problem, frankly recognize that the purpose of this aid consists of softening the conflicting and therefore critical situations inside these countries, caused by hunger and undernourishment of millions of people, and therefore they are counting on quenching the revolutionary fermentation and changing the transfer of the developing countries into a noncapitalistic course of development. This is, perhaps, one of the basic moving motifs of the "green revolution", also because the "green revolution" upon its production can promote the development of capitalistic relations in these countries, for which an ideology of imperialism is hoped.

However, here the "achilles heel" of those who make similar calculations is revealed. The spread of high-yield strains of rice and wheat, calculated for the leading modern level of agricultural practice, in many developing countries runs up against extremely archaic forms of land ownership and land use, and against the narrowness of the material base. The peasants are in essence deprived of the possibility for creating the necessary agritechnical fund for the new strains. Due to those modern methods for conducting agriculture the cost of cultivating the high-yield crops significantly exceeds traditional expenses. Studies conducted by the Institute of Rice, showed that /193
although the yield of new types could exceed the formers ones by three times, and the net revenue increased by four times by comparison with the cultivation of traditional strains, the expenses of the farmers grow even more rapidly, exceeding the former ones by 10-11 times [66]. In this way, in the opinion of a major expert of the "green revolution" and agriculture in the developing countries Professor G. Murdahl, "new possibilities are opened only to those farmers who have irrigated sections and means for purchasing fertilizer and other materials and equipment necessary for intensive conduct of agriculture...for the greater part of the land workers the new possibilities are unobtainable", or in other words the fruits of the "green revolution" are used primarily by the landowners, transferring their ownership into a capitalist base , and by kulaks and rich peasants.

In conditions of class differentiation the "green revolution" reinforces the process of stratification of the agricultural population. The Indian professor, Uma. J. Lil in his article on the effect of the "green revolution" on the occupation and standard of living in the agriculture of developing countries especially emphasizes the situation in which the gulf, separating

the kulak and landless peasant grows catastrophically as the achievements of the "green revolution" are introduced [67].

The capitalist intensification of agriculture will lead to a situation in which people are thrown out of agriculture in increasing numbers, and millions drag out a miserable existence. The international organization of labor (MOT) noted in its investigation that 25% of the entire working force in the developing countries is totally or partially unemployed. According to evaluations of NOT experts, by 1980 this number will reach 29.5%. Lack of full employment is even more serious in agricultural, which in the developing countries attacks the poorest strata of the population. Large families are forced to divide work on their meager sections among themselves, and landless peasants can find work only during the harvest period. In Latin America, for instance, one third of the agricultural workers are not fully employed [68]. In the opinion of many American economists, the excess in working force in agriculture of the developing countries will in the future increase more rapidly than in the non-agricultural sphere, and a vacuum will be created which is capable of absorbing this excess [69]. In the territory of the Republic of Pakistan there are 1,900,000 totally unemployed peasants, 300,000 peasants who own economically unprofitable sections of land, 3,600,000 landowners who have less than 12.5 acres of land each, and 700,000 people eke out an existence on one acre of land each. /194

All this will unavoidably lead to aggravation of the social contradictions both in the villages, and in society as a whole. The separate explosions in the class struggle, whose reasons are introduction of the results of the "green revolution" into the agriculture of the developing countries, has forced even the bourgeois press to speak with apprehension of the results of the "green revolution", pointing out that if definite barriers are not put up against it (the conduct of land reform, bringing the system of agricultural product purchases into order, etc., which is to say, bringing the agriculture of the developing countries to the capitalist model), the danger exists that the "green revolution" can grow into a "red revolution" [70].

On the other hand, the process of concentration of agricultural production continues. In Pakistan, again, 10% of the largest farmers control the significant part of the land under cultivation [71]. In this way the "green revolution" leads to the development of capitalistic relations in the agriculture of a developing country.

The western monopolies are counting on this very thing when, on one hand, they stimulate the "green revolution" by means of

participating in scientific research and export of "know how", and on the other, they are trying either themselves or by pressure in international organizations to deny to the developing countries, under various slogans, credits, if the money is requested for creation of a modern economic infrastructure of agriculture in the developing countries or for construction of national plant for agricultural equipment and chemical production.

We will introduce only one of the many witnesses who appeared at the congress of the International Association of Agricultural Economists, which convened in Minsk in August of 1970. The delegate from India S. K. Dey noted the following: "We need assistance to conduct measures connected with protecting and bringing to full maturity the personnel and natural re- /195
sources, for instance, by means of training and education of all types, protection of soils and so forth. The expenses for these measures will bring in profits after a lengthy maturing period, and the economic return from them, although it is significant, is common and diffused, and not concrete and precisely measurable. Therefore, with normal financial capital they are not used with favor. The creation of a socio-economic infrastructure is close to the same category. However, they are all prerequisites for stable economic growth, and their absence is the major obstacle to growth...the resources used through the World Food Program [72], must be absolutely new resources, i.e. factors on production, and at least these must be storage and transport means, some equipment and technical administrative cadres".

Many progressive scientists in the West share this point of view of such an infrastructure as a necessary element in the development of agriculture. Emphasizing the meaning of creation of a modern infrastructure in the agriculture of developing countries, a professor of the University of Manitoba (Canada) L. Siemens shows that an infrastructure for the peasants of developing countries will indicate the beginning of the second cardinal revolution in the production of foodstuffs, and neither any new scientific discoveries nor the development of new agricultural technology is necessary for it [73].

The economic side of the problem is no less important for the U.S.A. In supporting the "green revolution" and delivering agricultural knowledge to the developing countries, the U.S.A. is consciously expanding the sales markets for its machine-building, chemical and other companies which service agriculture. They are not simply expanding their export, shipping the products of agricultural chemistry and agricultural equipment to the "third world" countries. Taking advantage of the serious position of the developing countries, they are systematically spiralling the

prices for their products. Pakistan's minister of agriculture and social work A. K. Askhan announced in 1971: "Ten years ago we could buy a low-powered American tractor from the income of exporting 10 bales of jute; now this tractor costs us over 35 bales."

The American companies are striving to consolidate in the industry of agricultural chemicals in the developing countries. Thus, "Standard Oil of New Jersey" owns ten such plants in the developing countries, part of which are already functioning, and part are under construction. In the overall complexity of the company 275 million dollars are invested into their construction, and the company managers are counting on larger profits [74]. /196

According to testimony of the American press, approximately 800 companies of the U.S.A. are pumping profits out of the economy of the Philippines in one way or another. The total volume of American investments in this country amounts to 2 billion dollars. In addition to the mining, oil and refining industries, a significant part of the American capital goes for agriculture and the branches connected with it [75]. The "Esso" company became the major center for distribution of fertilizer and poison chemicals in the Phillipines. With this the well-known American economist Professor V. Ruttan directly stated that although the "Esso" company also built a plant on the Philippines for production of fertilizer, its contribution in the development of the "green revolution" was nevertheless insignificant, since the contribution of 'Esso' went for development of production technology which was obsolete before construction on the plant was finished" [76].

The American monopolies are receiving other material profits from the "green revolution". In the first place, the U.S.A. receives the possibility for saving its own material resources and scientific cadres, since the institutes create in the developing countries on problems of the "green revolution" also perform a whole series of fundamental investigations, representing value for American agriculture, which allows the U.S.A. in this way to refrain from duplication of similar investigations in its own country.

In the second place, collaboration between scientists of the U.S.A. and scientists of other countries allows foreign experience and discoveries in their own interests to be used. In the third place, the U.S.A. receives the possibility for attracting the most outstanding scientists of the developing countries to scientific centers. In the fourth, the U.S.A. has received practically unlimited possibilities for using the genetic funds and types of plants collected in the developing countries for organization of selection work in the U.S.A. itself.

In this way, in themselves the scientific and technical achievements of the "green revolution" are significant and important, although they cannot yield the needed effect without corresponding social measures. Only on a base of social transformation is it possible to solve the food and other acute problems of the "third world". Only in conditions of transformation of the "green revolution" can the necessary fruits be brought to the peoples of the developing countries. /197

Concerning the policy of the U.S.A. in this question, on the whole their actions in utilization of the "green revolution" testify that they are actively conducting a neocolonialist policy with respect to the developing countries, striving to attain the maximum political and economic gains.

Atomic Energy in U.S.A. Policy

Collaboration between the U.S.A. and other countries in the area of atomic energy is based on bilateral agreements between the Atomic Energy Commission (AEC) of the U.S.A. and separate countries or groups of countries. The Congress of the United States in the law on atomic energy of 30 August 1954 defined six directions where combined investigation and work are possible: 1) refinement and enrichening of fissionable materials; 2) development of reactors; 3) production of special nuclear materials; 4) health protection and safety (during work with atomic reactors); 5) industrial and other methods for peaceful utilization of atomic energy; 6) investigation in the areas of atomic power production listed above.

The basic regional direction of the U.S.A.'s foreign policy in the area of atomic energy was traditionally Western European. The basic ties of collaboration and rivalry have been formed here for the U.S.A. over the course of the last quarter of a century. In particular, the change in the power relationships among the western camp was graphically manifested in the area of atomic energy. In 1972 28 atomic power stations were in operation in the U.S.A., and in Western Europe there were 38, including 14 in Great Britatin, 8 in France, 5 in the FRG, 3 each in Italy and Switzerland, 2 each in Sweden and Spain and 1 in the Netherlands. However, the U.S.A. continues to retain strong positions in Western Europe. The majority of Western European /198 atomic power stations were built on the basis of American technology and (with the exclusion of the English stations) with direct participation of American firms.

On the whole the U.S.A. has over 30 bilateral agreements with different countries, two bilateral agreements with "Euratom" a combine of the "common market" countries and a bilateral agreement with theinternational agency on atomic energy of the U.N.

Eighteen of these agreements relate to combined practical work on power reactors, and the rest relate to combined scientific research[77].

The following are included in the number of major international technical programs on atomic energy, in which the U.S. AEC has participated in recent years [78]: with the FRG -- high-temperature gas-cooled reactors, and an experimental high-speed reactor; with Great Britain -- high-speed reactors, improved gas-cooled reactors, the chemistry and physics of graphites and ceramic fuel elements (heat elements); with France -- high-speed reactors, graphite-gas reactors and renewable fuel elements; with Japan -- high-speed reactors and ceramic fuel elements; with Switzerland -- the physics of high-speed reactors; with the Netherlands -- nitrogen heat conductors; with Canada -- reactors on heavy water and high-speed reactors; with Australia -- the physics of reactors ; with India -- technology of reactors on thorium, etc. (for Soviet-American collaboration in peaceful utilization of atomic energy, see Chapter V).

The AEC has regional representatives in Buenos Aires, Rio de Janeiro, Paris, London, Brussels, Tokyo and Bombay, who are supporting relations in the corresponding organizations of nearly 40 countries [79]. In the overall complex, the AEC collaborate with approximately 60 governments of the world either directly or tangentially.

The comparitive strength of the positions of the U.S.A. in the western world in the area of atomic technology is caused by two basic factors. In the first place, the U.S.A. possesses a great reserve of scientific and technical knowledge and the experience accumulated by American firms in the construction of reactors; in the second, there is the presence in the U.S.A. of excess capability in production of enriched uranium and heavy water. The construction abroad of atomic power stations according to American technology is credited by the Export-Import Bank. Among the necessary conditions, without the observance of which the bank will not provide credit, is included the obligation of /199 the owner of the atomic power station to purchase uranium fuel for this atomic power station only in the U.S.A. [80]. In this way, countries interested in the economic American reactors, and having purchased them, fall in dependency on the U.S.A. for the entire service period of the atomic power station. The assistant to the general director of the AEC M. Kretser called this practice a "long-term guarantee of stable delivery of enriched uranium".

In 1971 40 power reactors of the American type with a total power of close to 35 million kilowatts and total cost of about

one million dollars for an operation or were ordered outside the limits of the U.S.A. At that time the AEC had already delivered enriched uranium and heavy water for a sum of about 400 million dollars, and in accordance with the existing agreements, concluded by the AEC usually for a 30 year period, the revenues of the U.S.A. from delivery of enriched uranium for atomic power stations already ordered amounts to approximately 3 billion dollars [81].

Since, however, according to the evaluations of the AEC, the total power of overseas atomic power stations with reactors of the American type will reach 7280 million kilowatts in 1980, the monitor entries to the U.S.A. from export of atomic technology is increasing repeatedly. By 1980 the annual volume of export of enriched uranium, according to evaluations of the AEC, will reach 1 billion dollars, and by 1985 will reach 1.5 billion dollars. The AEC Has already concluded contracts for the export of uranium for a sum 800 million dollars [82]. But that is not all. Since 1 January 1969 the AEC has introduced a new practice into effect, according to which the natural uranium will be received from foreign purchasers for enrichment at American plants. In November of 1970 the sum of AEC contracts of this type reached 688 million dollars [83]. By 1980 the annual volume of enrichening work according to contracts of this type can reach 2.5 billion dollars [84].

In this way, the U.S.A. expends no small efforts in order to maintain their advantages in the western market of atomic technology, but perspectives here are relatively indeterminate. Concerning the trade of enriched uranium, here the positions of the U.S.A. are well strengthened in the contracts of the AEC. In the reactor market, the struggle is still ahead. The United States, true, has won the first round in the struggle, having developed a water-cooled reactor for enrichened uranium, however, the future belongs to the so-called breeder reactors, or reactors of the second generation, whose coefficient of the utilization of the uranium fuel reaches 80% by comparison with 1% in reactors of the first generation, while in them it is possible to "burn" not only uranium-235, but also uranium-238, of which 99.3% of the uranium ore consists. /200

In 1973 industrial breeder reactors were already in operation in two Western European countries: one in Great Britain with a power of 300,000 Kw, and one in France with a power of 250,000 Kw [4]. In the United States the first industrial breeder reactor with a power of 300,000 Kw will go into operation no earlier than 1978, which is to say that in this area the U.S.A. lags significantly behind other countries. However, at the same

[4] An industrial breeder reactor has been built in the U.S.S.R. with a power of 350,000 Kw.

time it should not be let slip from view that the work on breeder reactors is conducted in the U.S.A. on an extremely wide front and that the federal government allocated 3.4 billion dollars in the 1970's for financing of scientific research and experimental design work on this program[85]. As was shown in the hearings in the subcommittee on foreign economic policy of the committee on Foreign Affairs of the House of Representatives by D. Rose, a professor at the Massachusetts Institute of Technology scientists of the U.S.A. are now working on three different types of breeder reactors (on sodium, on gas and on salt)[86].

In this way, the problems with which the U.S.A. has collided in the area of atomic power production, are in many respects similar to those with which they were forced to deal in other new directions of foreign policy, arising and developing under the influence of the scientific and technical revolution.

Foreign Policy Aspects of the Energy Crisis

The energy crisis of capitalism, which developed with sudden acuteness during the wonder of 1973-74 moved the problem of struggling with it out among the most important foreign policy and domestic problems of the U.S.A. This crisis, whose onset was predicted for a long time by some specialists, is not, as is known, connected with the absolute exhaustion of the energy resources necessary for the livelihood of modern mankind. The explored reserves of oil and gas are sufficient to satisfy requirements /201
for world energy over the course of a single decade, and reserves in other types of fuel -- rock coal, oil-bearing shales and bituminous sandstones, can support these growing requirements over the course of several hundreds of years. Besides this, mankind is standing on the threshhold of mastering and effectively using principally new sources of energy -- atomic, obtained in breeder reactors, thermonuclear, geothermal and solar. This is becoming possible in the coming decade as a result of stormy scientific and technical progress.

The specifics of the present energy crisis are connected with peculiarities in the development of scientific and technical progress in conditions of an unplanned, capitalistic economic system. Speaking more concretely, it is expressed in the one-sided orientation in the power production of capitalistic countries on oil and gas as the major sources of fuel. According to rounded-off data, oil provides about 40% of the energy balance of the U.S.A. (together with natural gas -- 60%), it provides 60% of the energy balance of Western Europe and 80% of the balance of Japan.

It is sufficiently well known that this orientation in power production in the capitalistic countries on oil is connected with the great advantages of this type of fuel -- low expenses during recovery, convenience in transportation, and cleanliness and economy in use, especially in transport. In conditions of scientific and technical progress, the oil raw material has all the same become almost irreplaceable in the petrochemical industry for the production of many synthetic goods, and also in the petroleum installation industry for the production of high-quality lubricating materials. However, the convenience of oil as a fuel in the conditions of capitalism has lead to its clearly wasteful utilization, especially in the transportation sphere and for heating of the individual cottages of the better-off part of the population. All this has promoted the onset of energy difficulties.

With this it should be emphasized that the present orientation of capitalistic power production on petroleum fuel was aggravated by the activities of a handful of the largest American and Anglo-Dutch petroleum monopolies. These very monopolies, having grabbed up even before the Second World War the richest world deposits of oil, began to receive them at extremely low prices in the economically archaic oil-producing countries. /202
They used the rapidly growing mass of their profits for creation of a system of transportation, refining and distribution of oil and petroleum products which encompassed the entire capitalistic world and crowded other forms of fuel out of the world markets. As a result, for instance, the production of coal in a number of capitalist countries was sharply reduced. Having concessions for tremendous resources of oil available, the internatinal monopolies did not consider investments of significant capital for exploration of new deposits of it to be necessary.

The flow of relatively cheap oil forced by the international monopolies promoted an increase in the rates of economic growth in the capitalist countries during the third quarter of this century, however at the beginning of its fourth quarter serious problems which are difficult to solve have begun to arise in this area for capitalism.

This turning point was connected with a number of regions. They included, on one hand, the fact that the United States, due to the rise in demand for its power from countries exporting oil and petroleum products, began to be transformed into a major oil importer. On the other hand, the oil-rich nations, which were still in the 1960's achieving by all possible means an increase in its production and, consequently, the sums paid to them by the oil monopolies, united in the organization of petroleum exporting countries (OPEC) and began to manifest a desire for some limitation

in its production. The fact of the manner is that with the rapid rise in the demand for "black gold" on the capitalistic market, it proves to be more advantageous to the countries producing it to prevent the exhaustion of their resources and obtain a higher price for oil. Simultaneously, an attack was developed by these governments on the positions of affiliates of western (including American) oil monopolies which were acting on their territories (being in the form of their nationalization or acquisition of controlling blocks of stock). As a result the disproportion between the demand for oil and its supply began to be deepened in the capitalistic market.

The position deteriorated sharply in conneetion with the fourth Arab-Israeli war, begun on 6 October 1973, when the Arab oil-producing countries, as a protest against the pro-Israeli policies of a number of countries, began to reduce its production and introduced an embargo on delivery of oil to the U.S.A. /203
and Holland. Naturally, these limitations on delivery of oil on the part of the Arab countries were not in any way the reason for the energy difficulties of capitalism. They did, however, strongly nudge the inclination which had already developed in all oil-producing countries toward increasing the prices for oil. And this in turn will unavoidably aggravate the energy crisis, since with rising prices for oil the capitalist countries cannot obtain it in sufficient quantities to satisfy their growing in needs because of financial considerations.

Indications of the maturation of this principally new situation in the world petroleum market prompted the United States to introduce important new moments into its petroleum policy. Over the course of decades the traditional line of State Department has consisted of rendering support in every way to the largest American oil monopolies in their struggle against English, French, and other companies over concessions for recovery of oil and markets for its sale. During this the oil-producing countries themselves usually appeared as objects in this struggle of the capitalistic giants. The position sharply changed after the beginning of the 1970's when the oil-producing countries, having combined their forces, began to successfully conduct a policy directed at increasing the deductions of the oil monopolies for theoil recovered. Now the State Department is attempting to come out as the initiator in creation of a single front of the major capitalist powers against the oil-producing countries.

Corresponding American propositions will be introduced in 1969 and 1970 in the Petroleum Commission of the Organization of Economic Cooperation and Development (OESR) which includes, as is known, besides the U.S.A. itself, the Western European countries and Japan. At the beginning the American representatives in this organization informed their partners of talks between

the American monopolies and the oil-producing countries about increasing deductions for production of oil, and then attempted to raise the question of rebuffing the requirements of these countries relative to the expansion of their participation in the activity of the corresponding affiliates of the American monopolies. The American diplomats did not, however, succeed in arousing in the other capitalist countries in the interests in collaboration on these questions. With the matter already at that stage the representatives of Italy expressed the opinion /204 that governments of the oil-consuming countries could play a great role in talks with the oil-producing countries, thereby circumventing the "mediation" of the American oil monopolies.

A more general proposition of the U.S.A., introduced in the OESR on 6 May 1970, on development of common approaches to the energy problem by this organization also did not receive any support. As he wrote in his article in "Foreign Affairs" magazine, former chief of petroleum policy of the State Department, and presently Ambassador of the U.S.A. in Saudi Arabia, James Aikins said, "the general opinion consisted of the fact that the United States is becoming hysterical in connection with the rise in its import requirements; the United States, it was thought, is becoming too excited, fearing the loss of Arab oil. This is a problem which the Western Europeans and Japanese do not have to ponder too much. Isreal is the stone around the neck of the United States, the U.S.A. wanted this, and the Western Europeans and Japanese can negotiate with the Arabs themselves" [87].

Similar propositions were repeated by the American diplomats at the end of 1971 and in the Spring of 1972. Only in October of 1972 did the United States succeed in enlisting the rather diffused agreement of the countries of the European Economic Community (EEC) and Japan for development of combined approaches to energy problems. The concrete directions for such approaches, in the opinion of the U.S.A., had to include firstly, collaboration in the area of exploration for oil and mastery of new types of energy, and secondly, creation of some sort of "international organ" to prevent a sharp increase in competition for oil during the period of its scarcity, however these approaches do not receive support on the part of the American partners [88].

The next American proposition on collaboration of the capitalist countries in the area of energy was set forth in the stressed situation of the fuel difficulties in the capitalist world which arose after the fourth Arab-Israeli War and expansion of limitation by the Arab countries on oil shipment. It was made in an appearance of U.S. Secretary of State Henry Kissinger, which occured in London on 12 December 1973, after conclusion of the winter session of the NATO Council. He called for creation with- /205 out delay of a special "action group" on energy consisting of

authorized representatives of the U.S.A., the Western European countries and Japan and with participation of representatives of the oil producing countries. The United States, Kissinger said, is "ready to make an extremely large financial and intellectual contribution to the task of solving the energy problem"[89].

Kissinger proposed that in a three month period the group should develop a generalized program of actions, touching on such directions as the most effective methods for saving energy, searches for new sources of petroleum, the creation of additional "stimuli" in oil-producing countries to increase its production and the development and introduction of the newest alternative energy sources.

The American press hastened to compare Kissinger's proposition with the "Marshall Plan", set forth a quarter of a century ago. However, differing from those times, impressive cries for the proposition on the part of the capitalistic partners of the U.S.A. did not occur. It is remarkable, for instance, that the chiefs of the EEC member company governments, assembling in Copenhagen on 14-15 December 1973 -- which is to say soon after Kissinger's London speech -- in essence circumvented his proposition with silence. Only in a separate appendix on energy to the communique of this meeting was desireability mentioned of the development of international collaboration in the area of energy, and this within the framework of the OESR -- i.e. the organization where this question has already been discussed in the past on a relatively narrow technical level, and this discussion was concluded without results[90].

This position, evidently, has its serious explanations. Naturally, a proposition on technological collaboration on the part of the U.S.A. where Congress at the end of 1973 proposed an allocation of 20 billion dollars for research in the area of energy, has its attractive sides for the Western European countries and Japan. Their energy system, depending much more than the American one on import of Near Eastern oil, proved to be more vulnerable. However it cannot be forgotten that the solution of such problems as discovery of new resources of oil or the mastery of new sources of energy is not only a problem of new technology, but also a problem of time and truly collosal capital investments.

With respect to the scales of these capital investments, /206
we will defer to an announcement by the Vice President of the Chase Manhattan Bank , John Winger, made on 29 November 1973 in one of the congressional subcommittees. To satisfy the coming demand for oil the petroleum industry of the capitalist world must, according to his calculations, invest in the years

1970-1985 1350 billion dollars.[91] (For comparison we note that all the new private capital investments into the American economy in 1972 amounted to 178 billion dollars). At the same time it should be taken into account that the construction of enterprises for production of new types of fuel and energy requires a number of years and is connected with serious consequences for the environment.

Considering the complexity of obtaining such tremendous capital investments and mastering new technology, the majority of the western specialists predict during the coming decade a great dependency of the energy needs of the capitalist world, including those of the U.S.A., on the oil resources of the Near East, amounting to almost two thirds of the explored world reserve of this most important type of fuel in the capitalist world.

In these conditions it becomes apparent that the propositions of the U.S.A. on collaboration of the major capitalist countries in the area of solving energy problems opened two important fronts for diplomatic activity. The first of these lies in the plane of mutual relations with the major oil-producing governments, first of all in the Near East. Possession of the newest technology might also be used by the capitalist countries in this as a means of applying pressure on the oil producers and as a weapon for concluding mutually advantageous deals of a bilateral or regional character with them.

The striving exists in the ruling circles of the U.S.A. to combine the major oil-consuming governments under its aegis, in order to maintain the world positions of the American oil monopolies and force the oil producing countries to retreat from the positions already occupied by them.

In some other capitalist countries, for instance in France in Italy, an opposing tendency is already clearly apparent. They are striving to conclude intergovernmental agreements on long-term delivery of oil with the oil-producing countries of the Near East and North Africa. As compensation for these deliveries, presentation is foreseen of the newest technology to the oil-producing countries, including whole petrochemical and petroleum distilling enterprises. /207

Whatever the future perspectives of this struggle are, however, it is apparent that the time has past when a handful of capitalist monopolies could control the position on the world market. The oil producing countries have acquired a confident voice and are justifiably gaining a position in which the oil resources of these countries serve the matter of their economic development, and not the enrichment of foreign financiers. This

is one of the expressions of the overall change in world power relationships to the detriment of imperialism.

The second front of diplomatic activity touches on expansion of international collaboration in the area of searching for and mastering new sources of energy. This collaboration, both in the area of scientific and technical development, and in the plan for realization of joint economic and industrial products, will play an ever increasing role in the coming decade.

In conditions of capitalism the development of collaboration in the area of mastering new sources of energy will doubtless be interwoven with competition among the different countries. The mastery of new technology or new energy resources, for instance, enrichening uranium as a raw material for atomic power stations, is already used by the United States for foreign policy purposes. However, the energy problems rising before mankind increasingly requires that this collaboration is developed on a broad international space with consideration for the principles of peaceful coexistence of governments with different social structures, and bear a mutually profitable and equal character.

CHAPTER V

ON SOVIET-AMERICAN SCIENTIFIC AND TECHNICAL COLLABORATION

In an age of headlong development of the scientific and technical revolution the objective requirements for development of social production in all countries, regardless of the social system to which they belong, requires broadening of international cooperation in the area of science and engineering. This cooperation is actually transformed into a new branch of international relations.

With development of scientific and technical progress which is international in essence the requirement for collaboration becomes even stronger, because in modern conditions specialization of different countries is deepened, not only in the area of production, but also in the area of scientific research. The speed of changes in equipment and means for production, in materials and in technology are becoming so significant that they already require the span and complexity of scientific and technical works which move outside the limits of the capabilities of a single country, regardless of its might.

It is becoming increasingly difficult to conduct research along the entire front of movement of science and engineering with even success and with a uniform economic effect. And acute need rises for cooperation and for combination of efforts with other countries. Only this cooperation will allow the advantages of international division of labor to be realized, the irrational expenditure of excess ways and means for duplication of scientific and technical work to be avoided, thereby accelerating the general course of scientific and technical progress.

In addition to the economic effect, internatinal collaboration also plays an extremely important political role, affecting the international situation favorably and promoting tendencies toward easing of tensions and normalization of relations between governments. On one hand, the easing of tensions, the stability of intergovernmental relations and the presence of even a minimum of trust are the essence of the indispensable conditions for realization of scientific and technical collaboration, since for realization of any long-term and long-standing program of collaboration, confidence in the fact that political events will not disrupt the continuation of what has already begun is vitally important. On the other hand, the dialectics are such that setting up of business relations and the accomplishment of joint work in the area of science and engineering can, in turn, not help from /209

having a favorable effect on international relations, strengthening trust and stability as the single consequence of the fact that the countries are coordinating their scientific and technical programs and are connecting themselves with a common "circulatory system" of pipelines, electrical transmission lines, etc.

The exchange of goods for goods, which was until recent times the basic form of international economic intercourse, did not entail farreaching consequences. As a rule, this was a one-time and self-contained act. Scientific and technical collaboration, on the contrary, draws the participating countries into extended relations, and engenders a whole chain reaction in the area of economic relations -- activation of trade, construction of joint enterprises, joint programs for mastery of natural resources, mutual participation in construction of objects on the territory of third countries .... in essence this is what the principle novelty lies in scientific and technical collaboration and a new branch of international relations in the area of the scientific and technical revolution.

Regardless of anyone's desires, in the modern world there is a significant area of interdependency. There is the area of scientific and technical development, or even in the very nearest future without widespread international collaboration further forward movement will be very difficult. Already today we must relatively frequently have dealings with technologies of "global range" -- this relates to utilization of means of long-distance electronic communications, air transport, systems for /210
struggling with epidemic diseases, etc. The global character of scientific and technical development will evidently be even more apparent in the future. Many of the directions intended today for movement of scientific and technical progress make international collaboration absolutely imperative.

Soon, for instance, an area which can arbitrarily be called activity on changing the environment will be isolated. This reltes to techniques of changing and forecasting weather and climate; large-scaled activity on changing landscape -- for instance, the construction of gigantic dams; protection of the environment and conservation of it for further full-valued suitability for life, etc. Not only the cost projects, but the very scales of the geographical areas involved in them and the meaning of the consequences of such activity make international collaboration and indispensable conditions for it. It is possible also to name such areas as research and mastery of the world's ocean (mineral and organic resources of the sea bottom, ocean fauna, etc., space, meteorology; exploration for minerals, observation of forestry operations, utlization of communications satellites and direct broadcasting, the use of satellites as a means of navigation and

control over the movement of air and sea transport), a large complex of biomedical studies, etc. All these are focal problems which stood before mankind comparitively recently. There is also, however, another series of problems which directly effects both scientific and technical progress and international collaboration, and which compelled attention a century ago and retains up to the present time its primary meaning. This relates to the question of the total reserves of minerals on a planetary scale, on provision of the whole population of the earth with a sufficient quantity of food, on the growth of the world's population and possibilities for controlling that growth, etc. There is no need to prove that these "traditional" problems are also being heard in full again in the conditions of the modern scientific and technical revolution.

Without a doubt, the setting-up of truly international scientific and technical collaboration requires the formulation of some new approaches and strict observance of definite principles /211
in common interests of assuring international security and sovreignty. Thus, collaboration with equal rights and mutual gain presupposes a move away from attempts to pursue one-sided gains and infringing on the interests of third countries; it presupposes the capability of raising oneself above the narrow concepts of national interests and the ability to logically consider the interests of all mankind.

The tremendous possibilities for development of international cooperation in scientific and technical activity is most fully manifested in the relations among the countries of the socialist system; the complex SEMA program, in particular, witnesses to this. All the socialist countries are moving unswervingly along the path toward acceleration of their own scientific and technical progress and integration of efforts in this area.

This tendency, however, is also increasingly building a road for itself within the frameworks of the world's economy.

The Major Partners

The problems which the question touched on earlier without a doubt make the most widespread international collaboration real, and ideally in a worldwide scale. With this the U.S.S.R. and the U.S.A. are given especially visible roles in the development of this multinational collaboration as the largest representatives of the opposing socio-economic systems, the most developed countries with respect to science and technology, and leaders in worldwide scientific and technical progress. It is imagined that some especially favorable conditions connected with the character of both countries exist for the fulfillment of this task.

The nature and logic of technical development has placed some tasks before it which are similar in scope: the amount of territory , the geophysical similarity of some regions, scopes of industrial development, similar transport problems, problems of transmitting power over tremendous distances, the control of powerful rivers -- all this engenders an additional similarity of interests and creates additional soil for collaboration (which might also not exist in relations with some other partners).

The powerful scientific and technical potential and leading position which both countries occupy in the world, and the presence of a mass of scientists in them (according to some accounts, approximately a quarter of all scientists living in the world at the present time are working in each of these countries)-- all this indicates that unification of the scientific and technical efforts of the U.S.S.R. and the U.S.A. will allow them to solve problems of truly unprecedented scale, in which not only the peoples of these countries, but also all mankind are interested. Capitalislm, as is known, is not distinguished by its concern over the welfare of mankind -- but here the positive side of the international collaboration which is developing now can be seen: the participation of socialist countries in it will serve as a guarantee that all profits from this collaboration will become the property of the peoples. /212

Over the course of its entire history the Soviet Union has consistently promoted the line toward peaceful coexistence and collaboration with countries of the opposing socio-political system, including the U.S.A. Already during the first years after the revolution V. I. Lenin repeatedly turned to this problem, analyzing its different aspects. The position of the Soviet Union in this plan remained and still remains unchangeable. As is formulated in a Program for Peace, "the Soviet Union is ready to deepen relations in mutually advantageous collaboration in all areas with governments which on their sides are striving toward this. Our country is ready to participate together with other interested governments in solution of such problems as conservation of the environment, mastery of energy and other natural resources, the development of transportation and communications, prevention and liquidation of the most dangerous and widespread diseases and investigation and mastery of space and the world's ocean" [1].

The leaders of the capitalist governments, as is known, have adhered to another point of view for a long time. Several years were required for them to be sure that attempts to isolate, to "excommunicate" a modern developed country from scientific and technical progress were bankrupt. Today they are no longer trying to close their eyes to the fact that the striving to create artifical difficulties in hopes that something or someone

will not do, does not bring dividends.

Of course, the question does not now concern the appearance in the ruling circles of the U.S.A. of any sympathy to communism, or of a change in the socio-political nature of the American government. The question concerns recognition on the part of a growing number of Americans (including many representatives of the ruling class) of that immutable real fact that modern activity is not a game with a zero sum, in the terminology of mathematicians) which is to say that a win on one side does not automatically given an equal loss on the other. In modern activity there is a significant area of common interests, within the frameworks of which both countries can win by acting, although each of them with this is guided, naturally, by his own interests. /213

An understanding of true mutually profitable technical intercourse and the recognition of true equal rights on the two sides -- this is the basis which will allow normal development of collaboration. It is graphically and unequivocably fixed without exception in all agreements concluded between the U.S.S.R. and the U.S.A. in 1972-73 -- in each of them article 1 unchangingly postulates the intention of the science to develop and accomplish collaboration on the basis of mutual gain, equality and reciprocity.

The following question might arise: is there a contradiction between the conclusion of the marxists that the scientific and technical revolution is the newest staging area for the struggle between socialism and capitalism, and the readiness for scientific and technical collaboration between countries with different social structures? No, there is no contradiction here. In using the word "struggle", it should be remembered that here the question primarily touches on historical competition, whose meaning is in which structure more fully opens the path to the stormy progress of science and engineering and can place the scientific and technical revolution at the service of mankind and receive the maximum gain from it in the business of raising the well-being of people and improving the qualitative side of life on the basis of a higher overall level of science and engineering and for development of all production forces. The 24th CPSU Congres presented our people with the task of historical importance: to "organically combine the achievements of the scientific and technical revolution with the advantages of this socialist economic system" [2].

In what conditions can this problem be solved the most rapidly and successfully -- moving along the path of independent development of all aspects of scientific and technical activity or along the path of combining efforts with the scientific and /214

technical collectives of other countries with rational combination of the division of labor and cooperation; the advantages of the second course are unarguable. The modern scientific and technical revolution can be used fully in the interests of the "cold war" (and also a "hot" one), since this threat cannot for the time being be considered excluded). But now, more than any other time, it is possible to consider that with the necessary single-mindedness of efforts the idea of peaceful coexistence and peaceful competition, which the Soviet Union consistently advocates, will also be realized in this sphere. Peaceful coexistence, including aspects of both collaboration and competition, move into the central point the qualitative sides of scientific and technical progress, which are first of all connected with the question of toward the achievement of which goals will man direct his growing scientific and technical might, as scientific and technical affects man himself and his surrounding environment in the broadest meaning of this word.

From Exchanges to Collaboration

It would be untrue to assert that Soviet-American collaboration in the area of science and technology began to be developed in 1972 on a bare spot. No, experience in interaction had already been accumulated over the course of a number of years; this experience helped in development of the agreement on collaboration which would open a qualitatively new stage in the development of scientific and technical relations between our countries.

At the beginning of the 1950's all scientific and technical communications between the U.S.A. and the U.S.S.R. were practically stopped. However, in January of 1958 the first two-year agreement on exchanges in the area of science, engineering, education and culture was concluded, and was thereafter continued every two years (the latest such agreement was signed on 11 April 1972, shortly before the high level Moscow meetings) and was used as a basis for exchange of scientists and specialists. According to these agreements the sides received some possibilities for sending professors and teachers for a full school year for the conduct of scientific and teaching work in the natural, technical and humanitarian sciences, and to conduct seminars and exchange teaching methods and materials, etc. In all in 1958 through 1972 /215
the U.S.S.R. Academy of Sciences sent about 400 scientists and specialists to the U.S.A. and received approximately the same number of American colleagues, working in such pressing areas of science as computer technology, electronics, sold state physics and semiconductors, high energy physics, radio astronomy, laser technology, polymer chemistry, etc. A number of higher learning institutions of the U.S.S.R. and the U.S.A. have set up a regular exchange of apprentices.

In parallel with the agreements on exchanges, in 1959 the practice was established of signing memorandums of collaboration in the area of peaceful utilization of atomic energy (at the present time the existing memorandum was signed on 28 September 1972). A number of important joint studies of the State Committee on Utilization of Atomic Energy of the U.S.S.R. and the Atomic Energy Commission of the U.S.A. are conducted in their frameworks. In particular, work is being done in the area of high energy physics and plasma physics; at the powerful accelerator of the Institute of High Energy Physics in Serpukhov Soviet and American scientists are accomplishing a program of joint studies, whose results are then processed using American electronic computer equipment; the Institute of High Energy Physics of the Academy of Sciences of the Kazakh SSR is studying processes in nuclear photoemulsions, which were preliminarily irradiated in the most powerful accelerator in the U.S.A. in Batavia.

In the 1960's the scientific and technical relations between the U.S.S.R. and the U.S.A. took on some new forms. Thus, since 1962 the U.S.S.R. Academy of Sciences and the National Aeronautics and Space Administration of the U.S.A. began setting up contacts in the area of mastering space. In 1964 regular communications were established between the meteorological centers in Moscow and in Washington, and a regular exchange of meteorological information was begun (including that coming from satellites). In 1964-1968 the U.S.S.R. and the U.S.A. collaborated in the development of the problem of distilling water. Over the course of the next several years professional ties were developed between Soviet and American physicians, especially cardiologists and oncologists. In 1957 more or less regular contacts arose between Soviet and American astrophysicists.

Participation of the U.S.S.R. and the U.S.A. in work on international economic and scientific-technical organizations particularly within the frameworks of the U.N. and its special institutions has played a definite role in the establishment of scientific and technical contacts. A working collaboration between American and Soviet scientists has been relatively successfully set up in such organizations as the International Council of Scientific Unions, the Committee on Study of Space (COSPAR), the International Union of Theoretic and Applied Chemistry (IUTAC), and the World Energy Conference (MIREK). Such international measures as the International Hydrological Decade (1965-1974), the International Decade for Study of the World's Ocean (1970-1980), the International Biological Program, etc. also required participation of the U.S.S.R. and the U.S.A. /216

Ties which were set up in the beginning stage of scientific and technical interrelationships between the two countries primarily within the frameworks of relatively short-term two-year

agreements, without a doubt, played their positive role, having demonstrated the promise inherent in Soviet-American scientific and technical collaboration. Their possibilities, however, were limited. In the first place, the single exchanges could no way satisfy the scientists and specialists -- the specifis of scientific research and development are such that more flexible and varied forms of collaboration, as well as longevity and constancy are required. In a number of cases the scientific exchange naturally grew out into a broader and stronger collaboration. This was dictated by the internal logic of its development itself. An example of this is the joint work of Soviet and American oceanologists, who even before conclusion of the intergovernmental agreement on collaboration in research of the world's ocean lead the National Science Foundation of the U.S.A. and the Academy of Sciences of the U.S.S.R. to a special agreement on participation of Soviet scientists in the deep-water drilling projects using the American research vessels "Glomar Challenger" [3].

In the second place, limitations on possibilities for exchange were also caused by the fact that in the form of contacts that were coming together American pilot firms were actually excluded from them, while at the same time they are the basic producers of applied scientific-research and experimental design work in the U.S.A., and therefore are the natural partners for Soviet scientific organizations. While over the course of a relatively long period of time definite circles in the U.S.A. succeeded in presenting any form of scientific and technical communications with the U.S.S.R. like almost a "charity", not promising any gain to the United States itself, by the 1970's they were forced to abandon this niff under the onslaught of the achievements of Soviet science and engineering, and also to no small degree under the influence of scientific and technical successes and economic collaboration of the U.S.S.R. with such countries as France, Italy, Austria, Finland, England, Canada and Sweden. Henry Shure, the President of the "Patent Management" firm, trading in licenses and patents, expressed the opinion of many American businessmen, when he, commenting to a press conference about the purbhases of some Soviet licenses by American companies (including licenses for a cheaper method for producing aluminum, for an evaporation system for domestic cooling, and for a new, more improved technology for recovering magnesium), emphasized that the U.S.S.R. is "the greatest concentrated source in the world of first class technology with results which are proven in industrial practice and whose use will reduce for American industry the necessity for going into the risk of expensive efforts in the area of scientific, research, experimental and design work" [4]. /217

The agreements, signed in Moscow in May of 1972, essentially broadened the organizational frameworks in very good time, and began to hammer out further development in scientific and technical communications between our coutnries. They created a clear

contractural and legal base for the transfer from the stage of exchanges to true collaboration in the area of science and technology. Having determined the purpose of its collaboration as creation of "widespread possibilities for unification of the efforts of their (the Soviet and American -- author) scientists and specialists in development of the most important problems, the solution of which will promote the progress of science and engineering to the good of both countries and all mankind" the sides provided in the new agreements the most varied forms of potential scientific and technical communications, actually corresponding to the capabilities of the two mightiest scientific and technical powers in the world. Along with the exchange of scientists and specialists, which had already recommended itself well, here an exchange of information and documentation is included, as is joint development and accomplishment of programs in the area of fundamental and applied research, joing studies, /218 development and testing and an exchange of results of research and experiments, organization of joint courses, conferences and seminars, and the rendering of corresponding assistance from both sides in the matter of setting up contacts directly between the Soviet enterprises and American firms.

The promise of this last position which is formulated in full in Article 4 of the agreement on collaboration in the area of science and engineering from 24 May 1972 has become especially apparent today. Many American corporations have appeared with proposals to conclude agreements on joint work in the area of science and engineering. The state committee on science and technology has already signed an agreement with the "Occidental Petroleum" firm -- the question concerns scientific and technical collaboration in the area of recovery and refining of oil and gas, the production of agricultural fertilizers and chemicals, metal machining and metal coverings, and utilization of solid waste. An agreement has been signed with the "General Electric" firm in the area of electric power machine building, electrical engineering equipment and atomic energy; one has been signed with the "Brown and Root" company in the area of methods and technical means for control and organization in planning and construction; with the "Hewlett-Packhard" firm in the area of medical electronics, and finally,on collaboration in a whole circle of problems -- with the Stanford Research Institute; the corporation International Telephone and Telegraph Corporation will collaborate with the Soviet Union in the area of communications means, electronic components and publishing of scientific and technical information. The protocol has been signed between the Ministry of Heavy, Power-Production and Transport Machine-Building and the "John Manufacturing Co." firm on scientific and technical collaboration in the area of ore-mining equipment and the coal industry; symposia have been conducted in the U.S.S.R. with participation of the "Climax Molybdenum" firm -- on questions of special steels and with the "Bechtel" firm on organization and control of major construction work.

As practice in scientific and technical collaboration between the Soviet Union and other countries have already proved, its development goes more successfully when it is combined with economic collaboration. Relations with American firms also promised development in this area, and they will include not only exchange of scientific and technical information and joint research and development, but also purchase of licenses and technological processes, and in a number of cases, also joint accomplishment of economic projects. /219

In a report published on 10 June 1973 by the National Security Subcommittee of the Foreign Affairs Committee of the U.S. House of Representatives and dedicated to analysis of trade and economic relations between the U.S.S.R. and the U.S.A., in particular it was noted that: "businessmen in the United States and other highly developed countries are already showing interest in leading Soviet technology in such branches as metal machining, machine tool building, electronics, electric power plants, the production of aluminum and the mining of minerals." The authors of the report show the widespread possibilities of such "important new forms" of bilateral collaboraton as "joint industrial projects, and agreements on licensing."

Of course, the economic might of both the U.S.S.R. and the U.S.A., in scales of their scientific and technical potential leave no doubt as the fact that both countries are in condition to successfully develop themselves in the absence of collaboration in the area of science and engineering. However, as general secretary of the CC CPSU L. I. Brezhnev emphasized in his appearance on American television in June of 1973, "in this both us and many Americans well understand that the move away from collaboration in the area of economics, science, engineering and culture will indicate a move away from the significant gains and advantages which each of the countries might additionally receive. And chiefly, this would indicate an absolutely purposeless move, which could not be justified by any reasonable argument." 5

It is no secret that in the U.S.A. there were and are influential forces which came out against any shifts toward easing of tensions, and against improvement of relations with the U.S.S.R. in all directions. In the area of scientific and technical relations they attempted to retard the processes of normalization striving to represent the matter as if the U.S.S.R. were unilaterally interested in setting up collaboration with the U.S.A. However the myth about the scientific and technical "weakness" of the U.S.S.R. has been dealt such crushing blows during recent decades that it is doubtful that serious polemics are even appropriate. The powerful scientific and technical potential of the /220

Soviet Union and successes in science and engineering of other socialist countries have not left any doubt as to the fact that scientific and technical collaboration must become a "two-way street" according to a typical expression of one American businessman.

The development of effective collaboration between the U.S.S.R. and the U.S.A. in the area of science and technology can have positive effects, whose meaning moves far outside the frameworks of Soviet-American relations themselves and involves the interests of all mankind. If the two most powerful scientific and technical potentials of the world are united in a number of important directions, this creates unprecedented capabilities for acceleration of the movement of all mankind forward.

Creation of The Mechanism

The positive shifts, with which 1972 and 1973 were noted in the area of development of Soviet-American scientific and technical collaboration, have a clear design in the form of a whole complex of agreements.

The first agreement in the history of Soviet-American relations on collaboration in the area of science and engineering was signed in Moscow on 24 May 1972 during the high level meetings. Three agreements, concluded in the same May days, are directly connected to it -- on collaboration in the area of protection of the environment, in the area of medical science and healt protection, and in the study and utilization of space for peaceful purposes. After little more than a year five more agreements stood alongside these: agreements were signed on 19 June 1973 in Washington between the governments of the U.S.S.R. and the U.S.A. on collaboration in the area of agriculture, in the area of research of the world's ocean, in the area of transport and a general agreement on contacts, exchanges and collaboration, and on 21 June an agreement was signed on scientific and technical collaboration in the area of peaceful utilization of atomic energy.

One of the most important results of the period already past consists of the fact that the mechanism without which setting up of broad collaboration would be impossible has been created and has begun to function. As a result of the combined efforts of both countries, the "null cycle", not very noticeable to the eye, of laying the foundation, without which direction /221
of a strong and long-lasting building is unthinkable, has already been fulfilled. For the setting up of scientific and technical collaboration some calls are few -- a clear organizational and contractural-legal infrastructure is needed, regulating relations and making realization of a system of practical

measures possible.

The first important step in the path of creating such an infrastructure was the establishment in accordance with the agreement of 1972 on collaboration in the area of science and engineering of a mixed Soviet-American commission on scientific and tecbnical collaboration. The tasks of this commission were formulated in the following manner: preparation and review of proposals on development of collaboration in concrete areas, development and assertion of measures and programs for the accomplishment of agreements, definite establishments, organizations and enterprises which are responsible for the performance of some measures or others, and provision of sequential realization of the intended programs. It was also provided that the mixed commission could create subcommissions, councils or working groups on concrete problems to help it.

The mixed Soviet-American working groups were created in July of 1972 in six perspective areas of collaboration. The results of their activity already soon became real propositions for corresponding programs of collaboration -- making the theme of research concrete in each of the areas, with apportionment of scientific and research institutes and organizations (and in some isolated cases, directly of scientists and specialists), with which the realization of some programs or others must be taken in hand. In 1973 these proposals were already given out for the evaluation of the Soviet-American commission on scientific and technical collaboration.

The first session of the commission occurred in Washington from 19 through 21 March 1973. The Soviet delation to this session was headed by the first deputy chairman of the State Committee of the U.S.S.R. on science and technology, academician V. Trapeznikov and the American one headed by director of the U.S.A. National Science Foundation Dr. G. Stiver. Along with solution of ongoing questions, the commission devoted considerable attention to evaluation of the organizational questions touching on the organ itself -- the head part of the entire mechanism of Soviet-American scientific and technical collaboration, on affirmation of the positions of its activity and on evaluation of its role in the matter of creating such conditions which will lead to the establishment of productive and long-term communications between the specialists and organizations of both countries. /222

In this way, up to the present time more or less clear indications of the entire mechanism has been noted. Direct responsibility for fulfillment of the agreements in the area of science and engineering is borne by a mixed commission, consisting of Soviet and American parts on an equal basis. This commission conducts its sessions no less frequently than once per

year alternately in Moscow and Washington.

In the intervals between sessions communications between both parts of the commission is effected through secretariats. This involves-- and this is extremely important -- the presence of direct contacts between the organization responsible for the fulfillment of some programs of collaboration or others. In practice this means that as soon as a program is affirmed and the working contacts between interested organizations are established, in both countries there is no longer a need for intermediary for concrete work in some spheres of collaboration or others. In this case the commission will retain only the function of overall coordination and elimination of obstacles if such arise in the path of direct contacts.

In its first protocol the commission officially asserted that "its basic role is creation of new capabilities for scientists and specialists of both countries in unification of their efforts in work on the most important problems, whose solution will promote the progress of science and engineering to the good of both countries and all mankind".

A clear definition of the mission and functions, and the relations between the centralized and decentralized activity, and precision of the financial and legal sides of realization of the Moscow agreements -- such are the results of the past stage, which have laid a strong base for subsequent successful development of long-term relations.

The paces of further movement will now depend to a significant degree on the humdrum and extremely tedious work of both sides on development and improvement of the mechanism of collaboration, which must provide regular fulfillment of many functions: coordination of activities and joint planning, exchange, collection and analysis of information, the development of mutually acceptable procedures, standards, etc. /223

Selection of Priorities

One of the vital problems in setting up scientific and technical collaboration is the problem of determining priorities, which is the well-founded selection of the primary areas of mutually advantageous collaboration. During its solution at least two situations must be considered. Firstly, with all the tremendous sources of the U.S.S.R. and the U.S.A. they are still not limitless, and consequently, it is important to avoid dispersion of forces and means and to select spheres of their most timely application in order to concentrate efforts in the most necessary directions. Secondly, for the success of the matter, it is expedient in the beginning to select staging areas where it is possible to group and then rapidly move ahead, staging areas which

can become bases for further building up of efforts.

The Soviet and American sides jointly define six prospective areas of collaboration, representing mutual interests, in July of 1972. These are energy, the use of electronic computers in management, scientific research in the area of agriculture, water resources, chemical catalysis and the production of substances by the method of microbiological synthesis. The efforts of mixed Soviet-American working groups on preparation of concrete programs of collaboration were concentrated in these very areas. With this the following was considered:

-- The problem of energy resources and their optimal exploitation is becoming one of the key ones for the future mankind. Soviet energy production has compiled unique experience in creation of electric power transmission lines for super high voltage or great distances and experience in unification of energy systems and has achieved great successes in creation of magnetohydrodynamic generators -- all these directions arise acute interest in the American specialists. It should be noted that questions on energy resources are now standing in the center of attention in the U.S.A. In 1971 the administration of President Nixon set forth a program in the area of energy, which provided for the unification of forces of the federal government and private industry in searches for new sources of energy and optimal utilization of those already on hand. This is the first attempt at actions of this kind in the history of the country. Nixon's energy program includes such tasks as creation by 1980 of a demonstration model of a nuclear rear reactor with high-speed neutrons, increasing by more than double allocations for practical demonstration of methods of combatting pollution of the air with the wastes of power installations now in existence and the rendering of financial aid to perspective developments in the area of thermonuclear energy and magnetohydrodynamics. The program also includes a geothermal project -- production of electric power due to natural water vapor, present in some regions beneath the earth's crust. /224

American electric power production is following behind the achievements of the Soviet Union in similar areas with unweakening attention. In April of 1972 the magazine of the business circles of the U.S.A. "Fortune" urgently recalled that in 1971 the U.S.S.R. not only moved into first place in the world in production of steel, but also completed construction of the first large test model of a breeder reactor, that they launched the first successfully operating MHD-generator in the world, and that there are 19 functioning hermetic projects in the Soviet Union by comparison with 1 in the U.S.A.

The Soviet power people are, in turn, interested in methods,

used in the U.S.A. and differing from those used in domestic practice, of building large power blocks, including those providing less contamination of the environment.

All these problems, without which power production of the future would apparently be unthinkable: utilization of nuclear and thermonuclear, solar and geothermal energy, equal to the more "traditional" practical questions of planning and operation of diesel and hydroelectric stations -- have gone into the circle of those approved by the first session of the mixed commission for first order accomplishment in the area of power production.

Attaching such a great meaning to the problem of satisfying the rapidly growing energy requirements in both countries, as in the entire world, the U.S.S.R. and the U.S.A. have come to a point where they see the solution of this problem in accelerated development of nuclear power production along such directions as, in particular, controlled thermonuclear synthesis and breeder reactors, and therefore the resolutions were adopted to establish collaboration in these most complex areas of science and engineering on a more orderly and long-term basis, and on 21 June 1973 a specialized agreement on scientific and technical collaboration in the area of peaceful utilization of atomic energy was concluded in Washington. /225

In accordance with it the collaboration will for the time being be concentrated in three areas: on controlled thermonuclear synthesis, breeder reactors on high-speed neutrons and research of fundamental properties of materials. The cooperation of efforts in theoretical, calculation, experimental and planning and design work is provided in all stages right up to industrial utilization, including problems of design and operation of atomic power stations.

A large number of scientists considers that utilization of nuclear synthesis is the best method for satisfying the energy requirements of the world, since it involves relatively slight pollution of the atmosphere and uses as a fuel deuterium, which is present in the world in practically unlimited quantity (sea water can be a source of it). For the time being there are many unsolved problems in this area -- not only technical ones, but also theoretic ones, and therefore the possibility for combining the knowledge and experience of the two powerful collectives of scientists has a special meaning here. In evaluating this agreement, the "Washington Post" newspaper wrote on 22 June 1973 that, in the opinion of the chairman of the Atomic Energy Commission of the U.S.A. Dr. Dixie Lee Ray, "This new area in Soviet-American collaboration can allow the attainment of electric power from this source during the course of the next two, five and in

the extreme case ten years."

In the area of agriculture the March session of the Soviet-American commission isolated three focal themes: the question of selection, cultivation and protection of agricultural crops; methods of increasing productivity of agricultural livestock and fowl and; mechanization of agricultural production. With this Dr. Stiver emphasized the interest of American scientific centers in familiarizing themselves with Soviet experience in the struggle with plant diseases, with the practice of growing various crops in arid regions, and also with the unique collections of embryo plasma of science, which Soviet agricultural scientific organizations have available to them. /226

In the future, considering the value which the production of foodstuffs has for the peoples of both countries and for all of mankind, and desiring to use the maximum modern knowledge and technology in the area of agricultural production, the governments of the U.S.S.R. and the U.S.A. has isolated agriculture as an object of a separate specialized agreement, which was signed in Washington on 19 June 1973. This agreement, in the sphere of business collaboration, includes, besides the focal themes mentioned, problems of soil cultivation, the use of fertilizers and other chemicals, and handling and conservation of agricultural production; the necessity for a regular exchange of information on the production, needs, demand and trade of the basic agricultural products was especially agreed upon; an aspect such as utilization of modern methods for forecasting production, demand and use of agricultural products, including econometric methods was isolated and; the use of mathematic metals and electronic computer equipment in agriculture.

-- The problem of water resources also moves in some cases outside the frameworks of the national interests of separate countries. Both sides have agreed that with a continuing growth in the population of the globe and the volume of industrial production the effectiveness of conducting a water economy will acquire a tremendous meaning. The rational utilization of water resources, automation and telemechanization of land-reclamation systems and improvement of hydrotechnical construction, including the use of plastic in it are problems representing mutual interests.

-- Chemical catalysis was recognized as one of the leading frontiers of modern science. Studies in this area have a primary meaning not only for the ongoing development of the chemical industry, but also for its past days. Chemical catalysis studies methods of activation of relatively inert bonds in chemical compounds using a new class of catalyst -- metallo-complex compounds. Success in this area would open perspectives for a significant acceleration in various chemical transformations right up to a

principally new technology for obtaining some chemicl elements /227
(the question, for instance, concern the process of artificial fixation of atmospheric nitrogen by a process similar to the one which nitrogen fixing bacteria accomplish in nature). Both countries are intensively occupied with using catalysts in life support systems in space. The perspectives for using chemical catalysis for protection of the environment, and in particular the method for removing from the air nitrous oxide, one of the products of automobile engine exhausts, consisting of transforming it into nitrogen and oxygen using catalysts, are very promising.

In the area of catalysis, scientific interaction has already begun to be accomplished from the Soviet side by the Institute of Catalysis of the Siberian Division of the U.S.S.R. Academy of Sciences, the Institute of Chemical Physics of the U.S.S.R. Academy of Sciences and other institutes, and on the American side by Princeton and Chicago University and a number of industrial firms, including "Dupont". Interest in the Soviet achievements in the area of catalysis is great in the U.S.A. It is indicative that over the course of a month from the moment the results of the first session of the mixed commission on scientific and technical collaboration were published the U.S.A.'s National Science Foundation received requests from 11 scientific organizations in the country to include them in the joint Soviet-American investigations in the area of chemical catalysis. In turn, the Soviet specialists are interested in various methods for obtaining chemical catalysts which are used in American practice.

-- Preliminary consultations and clarification of programs have begun in the area of production of substances by the method of microbiological synthesis and in the area of application of electronic computer equipment for control of technological processes and production.

Such are the priority directions of collaboration which are noted and already developed by the Soviet-American working groups. In addition to this the first session of the mixed commission reviewed propositions on new areas of collaboration within the frameworks of the agreement, and among them: forestry, standards and standardization, oceanography, transport, a number of problems in physics and electrometallurgy. In part of these areas contact has already been set up between the directly interested Soviet and American organizations, for instance, between the State Committee of Standards, Measures and Measuring Instruments of the /228
U.S.S.R. and the National Bureau of Standards of the U.S.A.; between the Institute of Electric Welding Imeni Paton of the Ukrainian SSR Academy of Sciences and a number of American industrial firms; and between the State Committee on Utilization of Atomic Energy in the U.S.S.R. and the Atomic Energy Commission of the

U.S.A. The commission stated its intention to encourage this type of direct contact in these areas, for which the proper groups of experts were created; in those areas where collaboration is yet to begin -- forestry and transport -- mixed working groups were created for preparation of propositions on concrete programs of collaboration.

Collaboration in the area of transport has already been isolated in a special agreement, signed in Washington on 19 July 1973, in accordance with which the U.S.S.R. and the U.S.A. will in the first stage cooperate their efforts in such areas as the construction of bridges and tunnels, railway transport, including problems of high-speed traffic; civilian aviation, including problems of increased effectiveness and safety; sea transport, including the technology of sea shipments and handling of cargoes in ports and; automotive transport, including problems of traffic safety.

A new specialized agreement was also concluded (it went into force on 19 June 1973) on collaboration in the area of research of the world's ocean. Oceanography is one of those areas in which professional communication between the Soviet and American scientists were successfully established already in previous years. There is no doubt that the all-round study of the world's ocean for a peaceful purposes corresponds to the vitally important interests of all peoples, and indeed the ocean is the common property of mankind. Setting as their goal fuller knowledge and rational mastery of the world's ocean by all countries, the U.S.S.R. and the U.S.A. have agreed to combine their efforts in the area of fundamental and applied research. For the first stage of collaboration, the problems of large-scale interaction of the ocean and atmosphere, ocean dynamics, including planetary flows, the geochemistry and hydrochemistry of the world's ocean, geological and geophysical investigations , and bichemistry and the biological productivity of the ocean were selected. The task of intercalibration and standardization of oceanographic apparatus /229 and methods have also been set up.

To that noted above it should be added that work was developed in parallel on accomplishment of agreements also signed a year ago concerning collaboration in the area of protection of the environment, in the area of health protection and in space research. And in these directions the preparatory organization and methodological work is totally completed, contacts have been set up between the corresponding scientific collectives and the focal theme of the joint studies have been manifested.

In this way, the "starting" stage of setting up collaboration has been completed. Its perhaps most noticeable earmark is the practical goal-oriented direction of the programs developed, not limited by academic frameworks.

The positive changes in Soviet-American relations show how real the chances are of finishing with the "cold war" spirit and changing to constructive relations. The process of normalization of Soviet-American relations, begun at the high level talks in May of 1972, was continued and strengthened during the course of the historical visit of CC CPSU General Secretary L.I. Brezhnev to the U.S.A. In this, an important step was made in the manner of bringing into life a resolution of the April (1973) Plenum of the CC CPSU, which established an important goal before Soviet foreign policy: to make irreversible those positive shifts which are now occurring in the world situation. From the frontier achieved today to open new, more favorable possibilities for the realization of relations of peaceful coexistence, and in particular one of the important composite elements of this coexistence is scientific and technical collaboration.

CONCLUSION

The development of international relations after the Second World War shows that the unfolding of the scientific and technical revolution is one of the essential factors under the influence of which the foreign policy of the United States is affected. The major successes in the area of science and engineering frequently become in the hands of imperialism to a significant degree weapons, serving its military and political goals. In turn, the scientific and technical revolution leads in many ways to such far-reaching consequences, unfavorable for capitalism, so as to objectively force the U.S.A. to change its policy along a whole series of directions. As we have seen, many new directions in the U.S.A.'s foreign policy which have reinforced tendencies toward stabilizing the international situation have been borne this very effect of the scientific and technical revolution. /230

Of course, it would be an extreme simplification to see a direct tie everywhere between the processes of the scientific and technical revolution or technological achievements, on one hand, and the positions of the U.S.A. on some concrete problems or others on the other. In some cases the scientific and technical revolution affects the foreign political course of the U.S.A. in a more definite, clear form and this interdependency lies close on the surface. In others, the effect of the scientific and technical revolution on policy is tangential, intermediate and invisible at first glance. However it is evident that one of the characteristic features of the modern era still consists of the fact that science, as the well-known American scientist Jerome Wisner noted, is increasingly frequently "meeting" with politics. This is also supported by the fact that the scientific and technical revolution introduces new tendencies not only in the American theories of international relations, /231 but also in the foreign policy practice of the United States.

The U.S.A. is using its scientific and technical potential in an ever increasing measure as an instrument of foreign policy. For a long time the results of the influence of the scientific and technical revolution were clearly traced on the foreign policy of the U.S.A.

It is well known that the turning by the U.S.A. during the "cold war" years of the achievements of science and engineering into the service of aggressive military and political establishments not only lead to a fundamental turnaround in military equipment itself, but also in strategy and tactics, and it had an extremely essential effect on the sphere of socio-political relations. Atomic weapons -- the most destructive mass destruction means as a result of its qualitatively new properties cannot be

seen simply as one more sequential improved variation of a weapon of war. Without absolutizing this weapon, it should still be recognized that for the first time in the history of mankind a new type of weapon plays such a significant role in a political and diplomatic struggle. With nuclear weapons there is in essence no military history (the use of atomic bombs against Hiroshima and Nagasaki pursued goals which were more political than military), but for this there is already a sufficiently rich and varied political history.

International life after the Second World War, noted the the French investigator of military and political problems, Claude Delmas, developed "under a canopy of nuclear threat, and it was directly subjected to its influence" [1]. Naturally, the matter is not only of the weapon itself, however destructive and death-dealing it might be, but also of who has it available and what missions are intended to be accomplished by the possession of this weapon. It is doubtless that the nuclear factor acquired an exclusive meaning in the entire system of postwar international relations, radically changed many classical conceptions and impressions of foreign political activity and introduced the new logic of the atomic and space age.

The creation and improvement of modern strategic weapons systems, which became possible as a result of the scientific and technical revolution, which is directly connected with this evolution of power relationships in the world arena, unchangingly served as the starting point for formulation of the U.S.A.'s lines of foreign policy in the different periods after the Second World War. The American military and foreign policy doctrine /232 were developed, brought to life and went into the past with consideration for this.

The military power support of American policy, and the expressively blown-up military machine of the U.S.A. went into definite contradictions with the capabilities of their practical utilization. This is exactly why on a frontier of the 1950's and 1960's the American leadership, although it was inconsistent, all the same came to recognition of the unacceptability of a global nuclear war for itself. This was manifested in particular in the adjustment of a number of American foreign policy goals, especially after the democratic administration of President J. Kennedy came to power. The strategy of "massed retribution", which was upsetting to life, yielded its place to the strategy of "flexible reaction" in which, along with all-out nuclear war, an ever increasing meaning was attached to limited, local wars.

A definite move away from certain, more aggressive concepts is also beginning, also indicating a striving on the part of an

ever increasing number of American leaders toward seeking paths to the production of the danger of a direct encounter with the U.S.S.R. Over the course of a lengthy period of time, this did not indicate,naturally, that the ruling classes of the U.S.A. had moved away from the principle of using force and interference in the internal affairs of other governments. This is clearly testified to in, for instance, the history of the U.S.A.'s aggression in Vietnam, which involved the American people from the beginning of the 1960's in the longest bloody war which the United States has ever fought outside the limits of its borders.

It is characteristic that expansion of the aggression of American imperialism in Indochina was developed in parallel with the processes of the scientific and technical revolution. The U.S.A. clearly undertook attempts to realize their successes in the area of improvement on weapons, brought by the scientific and technical revolution, for purposes of achieving a military victory in Indochina. Simultaneously Vietnam became an actual proving ground for the newest types of weapons and methods for conducting war, including poisonous gasses, chemical substances which destroy foliage, napalm, and the newest types of multi-ton bombs. The Belgium magazine "Pourquoi Pas?" somehow correctly noticed that in Vietnam the U.S.A. opened a "new type of war", which is similar to some sort of nightmare from the area of science fiction. Electronics and ever increasingly "automated" massive air strikes and new death-dealing means: the U.S.A. has invented a new war, a war using a push bottom, an aseptic one, controlled remotely, a war where the enemy (whether he is military or civilian) is pursued on a screen using electronic computers"[2]. /233

However, the resistance of the heroic Vietnamese people, relying on the support of the Soviet Union and other socialist countries, condemn the military adventure of American imperialism a failure. The consequences of American aggression in Vietnam have also been manifested in a noticeable weakening of the internal economic and social rear support of the U.S.A. itself, and a weakening of its political positions across the entire world.

On the whole, by the beginning of the 1970's, such conditions had occurred in the world so that a necessity arose for the U.S.A. to adapt itself to the new situation, which was created primarily in connection with a further increase in the might of the Soviet Union and of the socialist alliance on the whole.

Calculations of the U.S.A. to assure itself of military and technical leadership after the Second World War were not, therefore crowned with success. They are now forced to consider the

fact that they did not succeed in winning a competition in arms. Moreover, the most far-seeing American activists understood that socialism is in shape to support both a reliable defense and development of its economy, that it had become powerful militarily and that any aggressor who dared to wage war against the governments of the socialist alliance could expect a crushing defeat.

The system of military and political situations which were based on the presumption of immediate interference by the U.S.A. into crisis situations, wherever they occurred and render "any" assistance to "all" forces to counteract socialism and the national liberation movement, could not but help lead to the political, and chiefly the military and financial involvement of the U.S.A. in international affairs.

The necessity for reviewing this, as Vietnam showed especially, as a foreign policy which was too risky and expensive and the necessity for adapting to the changing situation roused U.S.A. President R. Nixon to adopt a new foreign policy doctrine. Its /234
basic premise is a continuation of the foreign policy course of the U.S.A., but in a way which, differing from the past, would not cause the "overstressing" which is dangerous for the U.S.A. and would correspond to their real capabilities. In certain questions the U.S.A. began to manifest a more sober and pragmatic approach. This also relates to Soviet-American relations, to some questions surrounding Europe and to policy in the area of limitation of the arms race and reduction of the threat of nuclear war. The slogan of "the change from an era of confrontation to an era of treaties"[3], proclaimed by R. Nixon immediately upon his accession to the post of United States President should be evaluated as positive.

At the same time, as is known, there were several zig-zags in the policies of the U.S.A. after this. Positive tendencies in American foreign policies, however, continued to gain, including those in Soviet-American relations.

On their side the Soviet Union, as was emphasized in the accounting report of the CC CPSU to the 24th party congress, begins from the position that "improvement of Soviet-American relations would correspond to the interests of the Soviet and American peoples, and to the interests of strengthening peace" [4].

It is also characteristic that an extremely significant announcement was contained in Nixon's foreign policy message to the U.S. Congress on 25 February 1971: "In the new era the rise in the power of the Soviet Union has changed the military equation. The inability to adapt oneself to the change could lead to conflicts which would require an agonizing choice between paralysis and catastrophe" [5]. A sound mind and the realities

of the nuclear age lead the U.S.A. in the final analysis to the necessity for recognizing not only the "nuclear dead-end" or "nuclear equality" with the Soviet Union, but also nuclear and to a move away from the thoughts, mindless in the modern age, of solving the historical conflict between socialism and capitalism by means of war.

During his visit to the Soviet Union in May of 1972 the President of the U.S.A. R. Nixon made important announcements, which supported this evaluation of American policy. He noted that in the nuclear age "such a concept as security provided by predominance of force does not exist." Nixon spoke out for adoption of resolutions which could guarantee that the U.S.S.R. and the U.S.A. did not fight against each other in the future. /235 Even more essential was the fact that for the first time in the history of the U.S.S.R. and the U.S.A., a most important principle, whose intent consist of the fact that in the nuclear age no other base for support of relations between the U.S.S.R. and the U.S.A. exists except peaceful coexistence, is affirmed in an international and legal form in the document "Bases of Mutual Relations Between the Union of Soviet Socialist Republics and the United States of America", signed in Moscow on 29 May 1972 by Secretary General of the CC CPSU L. I. Brezhnev and President of the U.S.A. R. Nixon.

Prerequisites are therefore set up so that communications and collaboration between the U.S.S.R. and the U.S.A. are set up in all areas representing mutual interests on the base of the principle of peaceful coexistence and on a strong, long-lasting foundation, without any sort of loss to third countries. The sequential realization of these principles in political practice is accompanied by normalization of Soviet-American relations and normalization of the entire international situation.

The irreadiness, expressed by the U.S.A. and the U.S.S.R., to develop collaboration in the different areas was accompanied by practical steps and a whole series of agreements on various questions, concluded during the summit meetings in Moscow, and also during the course of the visit of Comrade L. I. Brezhnev to the U.S.A. in June of 1973 which was historic in its meaning.

After the long "cold war" period, when on the part of the U.S.A. won one artificial barrier after another was set up in the path of development of trade and economic, scientific and technical collaboration with the U.S.S.R., the barriers have actually been reduced to zero, and the most favorable perspective in these areas have also been opened. In the past, in particular during the course of the first postwar decade, the U.S.A., affirmed as the major center of the capitalist world

in the development and desemination of modern science and technology, attempted to block economic ties between the Soviet Union and the West, counting on retarding the development of the U.S.S.R. in this way. These calculations prove to be groundless. The scientific, technical and economic potentials of the Soviet Union have steadily increased. Life has showed the necessity and capability for the U.S.A. to start on the path of collaboration with the Soviet Union in scientific, technical and economic areas, and has asserted that no single country, regardless of how powerful and highly developed it might be, including the U.S.A., can get by without participating in international collaboration in this area. /236

During 1972-1973 agreements were also concluded between the U.S.S.R. and the U.S.A. on scientific and technical collaboration and tasks were established in whose solution all mankind would be interested and which are directly connected with the development of the scientific and technical revolution. Bringing them into life creates a base for large-scale and long-lasting collaboration in this area.

The turnabout from the "cold war" to peaceful coexistence, to which we are all witnesses in the 1970's, serves as an exclusively important shift in the system of modern international relations. It should not, however, be forgotten that these relations still remain to a large degree the relations of a complex and multifaceted struggle -- primarily a struggle between the forces of progress and reaction. The scientific and technical revolution, and the entire complex of problems connected with it play an increasing role in this struggle.

Together with this, experience of the postwar years demonstrates convincingly that, regardless of the difference in social systems, the juxtapositions of ideologies and principle divergences along a number of questions of politics, objective factors exist between the U.S.S.R. and the U.S.A. which determine the necessity for both governments to act in such a way so as to remove the danger of world war from the peoples of the world, eliminate vestiges of the "cold war" from relations between them and conduct bilateral collaboration in different areas up to the high level which both powers have achieved in the development of economics, science and engineering.

The Politburo of the CC CPSU, the Presidium of the Supreme Soviet of the U.S.S.R. and the U.S.S.R. Council of Ministers, in a resolution of the results of the Soviet-American talks in Moscow in May of 1972, having noted their important international meaning and evaluated them as an essential step in the development of Soviet-American relations, emphasized that these results showed once again that in the modern conditions disputed international questions cannot be solved with methods of a policy from

a "position of force". In the resolution of the Politburo of the CC CPSU, the Presidium of the Supreme Soviet of the U.S.S.R. and the U.S.S.R. Council of Ministers on the results of the visit of L. I. Brezhnev to the United States of America /237 noted that these talks laid a "good basis for normal development of Soviet-American relations and for strengthening of mutually advantageous collaboration between our two countries." The talks in the U.S.A. became an important step toward creation of a system of real guarantee of international safety, and toward elimination of the threat of the outbreak of nuclear war and toward further limitation of strategic offensive weapons.

It is extremely characteristic that as a result of the Soviet-American talks in the summer of 1973, important agreements were also signed which were connected with the leading frontiers of science and technology. Emphasizing the specifics of Soviet-American relations in conditions of the scientific and technical revolution, L. I. Brezhnev, speaking on American television, noted: "The Soviet Union and the United States -- these are countries which, as they say, can survive by themselves, although rejection of collaboration in the area of economics, science, technology and culture indicate rejection of significant gains and advantages which each of the countries could additionally receive" [6]. Practice shows that in the conditions of the scientific and technical revolution, Soviet-American relations can be transformed into an important factor of international peace, assuring easing of international tensions and deepening of mutually profitable collaboration between governments which belong to different social systems.

NOTES

CHAPTER I

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3. How deeply the American specialists diluted themselves relative to the capabilities of the U.S.S.R. to rapidly overtake the U.S.A. in creation of an atomic weapon is testified to by this fact: the American scientist V. Bush who for ten years headed the scientific research and development administration, to which the consulting committee on uranium which began creation of atomic weapons in the U.S.A., in his book "Modern Arms and Free Men", published at amoment when testing of atomic weapons was being done in the U.S.S.R. asserted that so many years would pass before the existence of two nuclear powers became a reality . "We do not have to give a precise evaluation", wrote Bush, "it is sufficient to say according to the opinion existing now this will require a longer period than the one which was considered necessary according to evaluations made immediately at the end of the war" (V. Bush, Modern Arms and Free Men, 1, 1950, p. 101). With this, as Senator Jackson said later, a still more pessimistic prognosis realtive to the capability of the U.S.S.R. to overtake the U.S.A. was contained in the initial version of the book, and at the last moment (after the Soviet tests, Bush hadto make a retraction from the already printed book (see "Congressional Record", Aug. 6,1969, page 9267).
4. The "Baruch Plan" was an American plan for control of atomic energy, which pursue the goal of binding a monopolistic possession of the atomic bomb for the U.S.A. The "Baruch Plan" was prepared by special committee of the U.S. Department of State and introduced into the U.N. Committee on Atomic Energy on 14 June 1946.

Basic support of the Baruch Plan was made on creation of an international controlling organ with broad authority, which wouldbe located outside the control of the U.N. Security Council.

According to the Baruch Plan, this organization was envisioned as an international atomic super trust, possessing the monopolistic beginnings of all reserves of fissionable materials and all enterprises for the production of atomic energy.

Possessing a majority in the international controlling organ, the U.S.A. intended to dictate its will to other governments.

The "Baruch Plan", acknowledges American historians D. Spanier and J. Nogee, "was briefly speaking, a superb instrument of psychological warfare: if the Soviet agreed to it, they would place themselves in a position of constant military -- and therefore

political -- under evaluation with respect to the U.S.A." (J.W. Spanier and J. L. Nogee, The Politics of Disarmament. A Study in Soviet-American Gamesmanship, N.Y., 1862, p.58)

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10. See "International Herald Tribune", Dec.15, 1969, p.7
11. "USFP-72", p. 155.
12. "Hearings before the Subcommittee on National Policy Machinery of the Committee on Government Operations, U.S. Senate", vol. 1, Wash. 1961, p.768.
13. H. Kissinger, The Necessity for Choice, N.Y.,1961, p.20 /240
14. See "Department of State Bulletin", Jan.25, 1954,p.108
15. Cited from: W. Kaufman, The McNamara Strategy, N.Y., Evansion and London, 1964, p. 95
16. The U.S.A. National Security Council was created in accordance with the 1947 law as the highest organ for coordination of military and foreign affairs and the Central Intelligence Administration, concentrating in its hands the basic functions in the area of political, economic and strategic military intelligence.
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19. a) (Combined) Command of heavy-aircraft defense of the continent (specialized) Command of strategic aviation, organized according to functional principles; b) (Combined) Command of the armed forces in the area of Alaska, the Atlantic, Europe, Pacific Ocean and (specialized) Strike Command, which is responsible for a rapid shipment of combat strike forces to an area of overseas operations (now reorganized into the combat-ready reserve Command), combining functional and territorial elements; c) (Combined) Southern command -- territorial.

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24. See H. York, op. cit. pp.52-59
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26. "The New York Times", Dec. 13, 1970
27. "Hearing on Military Posture. Committee on Armed Services, House of Representatives 87th Cong., 2nd Sess.", Wash. G.P.O. 1962, p. 3161
28. See C. Hitch, op. cit., page 65
29. "Report to the President and the Secretary of Defense on the Department of Defense by the Blue Ribbon Defense Panel July 1, 1970", Dept. of Defense, 1970, p.59.
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39. Ibid, p. 212
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43. Ibid, p. 60
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CHAPTER V

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2. Ibid, page 257
3. This was in particular expressed in more detail in the magazine "The U.S.A. Economics, Politics and Ideology" (see 1971, no. 6, pp. 107-113).
4. "Facts-on-File", 1972, p.713
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CONCLUSION

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2. "Pourquoi pas?", 6 Jan. 1972
3. "The New York Times", Jan. 21, 1969
4. L. I. Brezhnev, the Lenin Course, v. 3, page 223
5. "U.S. Foreign Policy for the 1970's. The Emerging Structure of Peace. A Report to the Congress by Richard Nixon, President of the United States. Feb. 25,1971", p.5
6. "Pravda" 25 June 1973

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